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HAY FEVER

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THE TREATMENT OF HAY FEVER

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THE TREATMENT OF HAY FEVER

BY ROSIN-WEED, ICHTHYOL AND FARADIC ELECTRICITY, WITH A DISCUSSION OF THE OLD THEORY OF GOUT AND THE NEW THEORY OF ANAPHYLAXIS

BY

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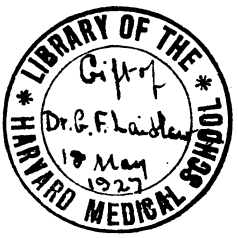

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PREFACE

THE essentials of this book, rosin-weed, ichthyol, and faradism, were announced at the Baltimore meeting of the American Institute of Homœopathy, in June, 1916, and published simultaneously in the *New England Medical Gazette* and in the *Journal of the American Institute of Homœopathy* in December, 1916. They were presented also at the New York City branch of the United States Hay Fever Association in July, 1916; at the annual meeting of the same Association at Bethlehem, New Hampshire, in August, 1916; and rather widely printed in the public press of New York and Boston in the summer of 1916.

As a suggestion to those who may wish to follow the subject of hay fever in its recent interesting developments, chapters have been added on the old conception of gout, the new theory of anaphylaxis and treatment by diet, by pollen extracts and by bacterial vaccines.

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THE TREATMENT OF HAY FEVER

CHAPTER I

THE DIAGNOSIS

UNDER the name "hay fever" I include rose-cold and the so-called hyperæsthetic catarrh or vaso-motor rhinitis, all characterized by intense itching of the eyes, nose, and throat, free discharge, sometimes asthma, the attacks being precipitated by strong odors, dust, or pollen. There are many forms of the disease, some occurring in May or June, some as early as March, before the budding of vegetation, some even in the winter; but the large majority of cases occur in August, coincident with the flowering of late summer vegetation, notably the rag-weed and golden-rod. It is not so well known that the California privet, so widely used in hedges and parks, aggravates many patients, especially in June and July, when the scent of the flowers is strong. Others are irritated instantly by the odor of crude oil that is spread so freely

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on the roads in summer, by metal-dust, and by the cinders of a railway trip. Some patients are sensitive to one irritant, some to many irritants. I knew one man whose itching of the eyes began in March, nose and throat following in April and May, cough in July and August, who was sensitive to each and all of these irritants from March to October every year for thirty years.

If we follow the modern tendency and classify the cases according to the specific irritant, we shall have an endless number of varieties according to the endless number of possible irritants; and where will you classify the man who is subject to them all? In the present state of our knowledge, it seems better to regard the sensitiveness to irritants as the characteristic of these cases and to think of them as different forms of the same disease. In most text-books this idea is expressed by the terms *hyperæsthetic catarrh* and *vaso-motor rhinitis;* but there are serious pathological objections to the terms *catarrh* and *rhinitis*. These objections and the reasons for regarding the lesion as an angioneurotic œdema are discussed

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in Chapter VI, on Hay Fever as Urticaria, to which the reader is referred.

An additional reason for regarding all these varieties as superficially differing forms of the same disease is the fact that all of them are curable by the same methods. I am aware of the danger of error in this argument, the persuasive but misleading *Analogieschluss*, and would not advance it too strongly. However, for all practical purposes except the vaccine treatment, described in Chapter XII, all these hyperæsthetic cases may be regarded as varieties of the same disease.

With a patient suffering from hay fever, as with a patient suffering from any other disease, the first thing to do is to take the history and make an examination. Usually, the nature of the case will be clear from the history, but it is a mistake to rest here without looking into the nose and throat. In the nose, you may find anything from a polyp to a shoe-button, any of which may require mechanical removal before you will make any progress with your medicines, no matter how well selected. Usually, you will find nothing but a swelling of the mu-

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cous membrane of the turbinates with free discharge. If you are an adept at examining the nose, you will probably search for the sensitive areas, touching of which causes a spasm of sneezing. These may be found anywhere in the nose, but most commonly at the anterior and posterior ends of the middle and inferior turbinated bones. I apply ichthyol to the naso-pharynx to test the sensitive area described in Chapter III.

What constitutes a gross lesion requiring surgical removal? Competent men differ widely and the practice of the same man has differed widely at different stages of his career. For a time there was enthusiastic cutting of septal spurs and burning of redundant mucosa and cauterizing of sensitive areas. I think that the relation of the nose specialist to hay fever is similar to the relation of the abdominal surgeon to neurasthenics. The more experienced he becomes, the more he advises letting them alone or using gentle measures. Distinct polyps should be removed.

Having finished the examination and found no gross lesion requiring surgical removal, the treatment must be decided.

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The easiest plan for both patient and physician is to give rosin-weed, as described in Chapter II.

The most painful for the patient but often effective in severe cases is the application of ichthyol, as described in Chapter III.

If the patient is systematic and will attend to it, the ichthyol may be replaced by the *frequent* spraying with menthol and eucalyptol, as described in Chapter IV.

The best treatment of all, but that which takes the most time of both patient and physician, is the use of electricity, as described in Chapter V.

Consider the possible importance of diet in the case, as described in Chapter XIII.

Finally, ponder on the nature of hay fever, as discussed in Chapters VI to X, and the advisability of using vaccines or pollen extracts, and you will have done your whole duty by your patient and by your art.

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CHAPTER II

ROSIN-WEED

FOR many years the fluid extract of rosin-weed has been known in my family as a remedy for rose-cold and hay fever. This use of it was discovered by my father, Dr. Alexander H. Laidlaw, in the epizoötic days of 1872, when horses were dying by the thousands all over the United States and Canada. Though he knew it first as a horse medicine, its use seems to be forgotten in veterinary practice, for I find no mention of it in available veterinary books, old or new.

In my father's practice this remedy acquired considerable fame, and I still receive a letter or two every summer from distant cities from some one who has heard of the miraculous medicine. For many years it was his intention to give this remedy to the world in proper form, supported by competent testimony; but, in a busy life, with many projects unfulfilled, this was never done. During my own professional life I have been interested in many things

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that seemed more important than hay fever and have not heretofore taken up the matter of publishing our experiences with the drug. Realizing that there were many hay fever victims both in this country and in Europe who might just as well be getting the relief that this drug would give them if they only knew about it, and having no desire to profit by my possession of the secret of this remedy, I made the announcement last summer, first to the American Institute of Homoeopathy and next to the United States Hay Fever Association. I announced it first to my old society, the Institute, believing that my friends there, who have known me many years, would credit my statements as made in good faith and give the drug a fair trial.

The Dose. Beginning ten days before the expected attack, give ten drops of the fluid extract of rosin-weed in a little water four times daily, after meals and on retiring. To children, give five drops. If the symptoms of hay fever appear, increase the dose to twenty and even thirty drops and continue this dose through the entire hay fever season.

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It is better to begin ten days before the expected attack, for, in hay fever, as in all periodic diseases, prevention is better than cure, requires smaller doses, and is more certain. However, few patients are wise enough to anticipate trouble. Most patients apply for treatment when, literally, the disease is in full blast, and most of my observations have been made on the latter class. In case the disease has already begun, start with the same dose, ten drops. If not relieved in three days, increase the dose by five drops every third day up to thirty drops. If the symptoms should be relieved by the smaller dose, it is unnecessary to increase it.

Cure or Palliation? In regard to the permanence of the cure, most patients require it for several seasons. Some need it every season for many years. A few are permanently cured in one season.

For further information about the plant, rosin weed, its preparation and use in medicine, the reader is referred to Chapter XIV

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CHAPTER III

ICHTHYOL AND THE POINT IN THE NASO-PHARYNX THAT CONTROLS THE SYMPTOMS

WHILE the use of rosin-weed was discovered by my father, the value of ichthyol in the treatment of hay fever and the point in the naso-pharynx that controls the symptoms are discoveries of my own or, at least, I fondly think so. In current medical literature, I find no reference to it. In Merck's *History and Preparation of Ichthyol*, a summary of its use to 1913, ichthyol is advised in hypertrophic and atrophic rhinitis, but hay fever is not mentioned. Reference to recent books, as Coakley, Ballenger, Ivins, Bosworth, Kyle, Grayson, show no knowledge of the use of ichthyol in hay fever nor of the spot in the naso-pharynx that controls the symptoms.

The point of the matter is this. In hay fever, the itching and redness of the eyes, nose, and throat are controlled from a sensitive point in the naso-pharynx. Local

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applications to this point will relieve almost instantly not only the itching of the throat but also the itching of the eyes and nose and all symptoms of the disease. In some cases such relief carried out for several seasons makes permanent cures.

My knowledge of it came about in this wise. At about the age of sixteen I developed a rose-cold that began in June and extended into September. A few years later it began in April and lasted until October. By one of those ironical tricks that fate plays on the great ones of the earth, rosin-weed, the family remedy that cured everybody else, gave me only partial relief. It is unnecessary to follow in detail the various experiments made. This was long before the days of Dunbar's pollantin, Holbrook Curtis' ambrosia, adrenalin, and the modern vaccines. I did not think cocaine a safe drug and never used it, preferring the hay fever to the cocaine habit. About this time ichthyol was introduced by Merck for the treatment of catarrh of all mucous membranes and I found that ichthyol, used in a certain manner, relieved the symptoms completely. On swabbing the naso-pharynx with pure ich-

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thyol, there was a severe burning sensation for a minute or so, but, when the burning subsided, there was great relief, not only of the itching throat but also of the itching of the eyes and nose. That is, in the customary swabbing of the naso-pharynx, we touch a point that controls the whole group of symptoms of the eyes, nose, and throat.

In those days the laryngeal and pharyngeal tonsils were very much to the fore in medical discussions, and at first I thought that this point was probably the pharyngeal tonsil of Luschka. However, judging from the location of the most severe burning, the controlling point is rather on the upper surface of the soft palate. The exact location of this point is not of practical importance. If you swab each side of the naso-pharynx with plenty of ichthyol, the reflex contraction of the pharynx while the swab is in it will spread the ichthyol over the right territory.

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CHAPTER IV

MENTHOL AND EUCALYPTOL

THE ichthyol treatment described in the last Chapter is very effective, but it burns severely for a few minutes and, for this reason, some patients will not endure it. With children, it is impossible. Another disadvantage to the patient and, sometimes, to the doctor, too, is that it requires the patient to come to the doctor every day for the application, though Dr. Hollister tells me that he had one patient who learned to apply the ichthyol to her own naso-pharynx and, what is more wonderful still, kept up the treatment long enough to get well. In recent years I have hit on a treatment that is more comfortable than ichthyol and in many cases equally effective, though a little slower in giving relief. It can be carried out by the patient with little trouble and requires no skill in handling nasal swabs, an important matter with nervous patients and children.

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I have found that the ordinary solution of menthol and eucalyptol and thymol in liquid albolene will relieve hay fever if applied to a certain spot a certain number of times a day. At this point I can see the reader's face assuming an expression of pained surprise. What is there wonderful about that? Is there not a bottle of this solution on the table of every doctor in the country and does not every modern text-book on the Nose and Throat advise inhaling vapor of such a solution to relieve hay fever? True. Note that I did not say that simply spraying this solution in the nose and throat will cure hay fever. I said that it must be applied to a certain spot a certain number of times a day. It is a case of the technique being more important than the remedy; for I have no doubt that there are other medicines than ichthyol and menthol that will relieve if put on the right spot. The reason that every doctor has not discovered for himself the full value of this commonly used solution is that he did not put it on the right spot and he did not use it often enough.

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The Right Spot, as related in the chapter on Ichthyol, is either the vault of the pharynx or the upper surface of the soft palate.

Frequency. Once or twice a day is insignificant. It must be used every hour or oftener when the symptoms are acute. Here I borrow an idea from the dermatologist who learned long ago from Unna that when an ointment rubbed on twice a day fails to cure an eczema, it may be cured by keeping the same ointment constantly applied to the part, day and night. The nasopharynx of the hay fever patient requires the same continual application of the cure and we come as near as possible to a continual application by applying the solution every hour or two.

Such frequent applications are impracticable as office treatments, but must be carried on at home or at business by the patient or a member of the family. If an expert hand is available to spray the nasopharynx, the tip of the atomizer should be pointed forward so that the spray is directed into the posterior nares and the posterior surface of the soft palate as well as the

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vault of the pharynx. An adroit patient may learn to do this, but even an adroit patient, unfamiliar with the anatomy of the throat, may spray only the front of the palate and fail to get the solution correctly applied. To avoid these mistakes and insure the oil getting on the right spot, the patient should be taught the following simple technique.

Method of Application. Taking an ordinary atomizer full of the oil, the patient lies on the back with the head low or on one flat pillow. He must be able to breathe freely through the nostril to be treated. Usually, one side of the nose is free and he begins with that side, inhaling the oily spray freely. He then remains lying on the back with the head low while the oil runs backward into the naso-pharynx, especially on the upper surface of the soft palate, where it burns a little but not nearly as much as ichthyol. After two minutes or so, the other side must be treated, but it must first be opened up so that the patient can breathe freely through it. This is done by turning on one side so that the stuffy side is uppermost. In a few minutes this side will open

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up and the spray can be inhaled through it freely back into the throat. To be thorough, the patient treats each side several times. For the first few days the treatment should be carried out every hour or so. After a few days or a week mild cases get perfect relief and even severe cases may drop to four treatments daily. Such a method is far safer than cocaine, which should never be put in the hands of the patient for any purpose whatever.

For obstinate cases ichthyol remains the most effective of the local applications. With those adults who can learn to spray the naso-pharynx and who are heroic enough to bear the sharp burning for a few minutes for the sake of ultimate relief, I mix one-tenth ichthyol with the albolene spray solution. Ichthyol leaves the throat raw and uncomfortable for a few minutes. For this reason it should not be used as frequently as the albolene solution.

Ichthyol does not mix well with the albolene, but precipitates quickly. As it does not mix readily by shaking, the mixture must be stirred before using. The manufacturers, McKesson and Robbins, were

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good enough to experiment in their laboratory with mixtures of ichthyol and albolene. They report that they were unable to make a satisfactory combination and that "the only way to get a permanent mixture of the two would be by a process of emulsion, which would be too thick for spraying purposes."

It may be objected that my newly discovered point in the naso-pharynx is merely the posterior end of the inferior turbinated bone, as described by Mackenzie and Sajous and others long ago, and that the spraying of the nasal passages simply benumbs the sensitive areas, anterior, middle, and posterior, that are well known to rhinologists. This may be so. At any rate, the method just described makes possible a treatment of these areas in every case, though far from skilled assistance. The treatment by cautery must always remain a treatment by the skilled specialist in selected cases. Even if my sensitive spot in the pharynx is nothing new, this method will at least place in the hands of thousands of hay fever sufferers a simple method of relief, which thought there is more satisfaction than in

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being reputed the discoverer of the resurrection bone itself. [1]

[1] Throughout the middle ages, there was a firm belief in the existence in the human body of an indestructible bone which was thought to be the necessary nucleus of the resurrection body. With the revival of dissection and the study of anatomy in the sixteenth century, many anatomists searched for it eagerly but it was never found.

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CHAPTER V

THE FARADIC CURRENT AND OTHER FORMS OF ELECTRICITY

THE distinguished dermatologist, Dr. Duncan Bulkley, used to argue that lupus erythematosus was a neurosis because he could cure it with phosphorus and thought so highly of this *tour d'esprit* that he made it the subject of a Presidential Address.

In the same way I might argue for my favorite theory that hay fever is a neurosis, an angioneurotic œdema, because it is curable by electricity; or that electricity cures hay fever because it is a neurosis. These are examples of reasoning by analogy, found so frequently in medical writings, so plausible and so perilous, leading more often to error than to truth. So I will not argue the matter at all, but simply state the result of my observation that faradic electricity cures hay-fever. This electric treatment takes time and trouble, but if both physician and patient are willing to take that time

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and trouble, more permanent cures may be secured than by any other treatment known to me.

The use of electricity to cure hay fever is one of those bits of therapeutic gold that lie long hidden in medical literature, are found for a moment, and quickly lost again. Back in 1875 Beard and Rockwell speak of two cases, one cured and the other relieved by descending galvanism. In 1871, Neftel relieved a case of hay asthma by galvanizing the vagus; but recent books know nothing of it. Monell, Bigelow, Massey, and Bartholow know electricity about the nose only as a cautery. Tousey's big book suggests the local application of the high frequency current in hay fever, of which more anon at the end of this Chapter.

It was from none of these that I stumbled on the fact that faradic electricity would cure hay fever. In 1894 there appeared in New York a patriarchal old gentleman with a queer idea that he could cure pneumonia, tuberculosis of the lungs, and asthma by manipulation. He was Dr. Orrick Metcalfe, of Natchez, Mississippi, a brother of

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Dr. John T. Metcalfe, long one of the leading physicians of New York and Professor of Medicine in the College of Physicians and Surgeons. Dr. Metcalfe visited various hospitals, trying to interest physicians in his method, demonstrating it freely to whomever would attend. He had a hard time with the Philistines, who, for his brother's sake, would receive him politely in their clinics, give him any number of charity patients to work on, but seldom take the trouble to go personally and see what he could do. He remained in New York for several years, during which time I watched his work and was convinced that the principle was sound and the results good. He made one striking cure of a patient of mine, an old lady who for many years had a most obstinate cough that she had taken all over the world, to Egypt and Switzerland and Colorado, without relief. Dr. Metcalfe treated her by his manipulation in the winter of 1896, cured the cough so thoroughly that it has never returned, now twenty years, as I know personally, because the old lady still consults me for minor ills. Let me add this tribute to his memory, that

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there never lived a more unselfish, practically benevolent physician than Orrick Metcalfe, true to the noblest traditions of medicine, working away at his hobby, not because it was profitable, which it was not, but because he believed it to be true, constantly seeking with open mind to improve his methods and to learn better ways.

In regard to asthma and pneumonia and phthisis, his starting point was a supposed stiffness or rigidity or lameness of the muscles of respiration as the first step in the chain of events, and his effort was to limber up at as early a time as possible this stiffness of the muscles. By manipulating the muscles of the chest, neck, back, and abdomen, he would find certain points that hurt or where the muscles were plainly tight or stiff. Continuing the manipulation, he would have the patient take deep breaths and try to cough. Often, when a certain spot was manipulated, the patient would begin to cough without prompting. Such a spot was his delight to find. He would continue to manipulate it, encouraging the patient to cough and expectorate, holding that free expectoration brought relief to the lesion.

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In pneumonia the expectoration was often bloody, which pleased him mightily. I have seen him thus manipulate a consumptive only a few hours after a hemorrhage and encourage him to expectorate, in such direct contradiction to our usual policy of absolute rest that I trembled inwardly for the patient.

The possible relation between a muscle-bound chest and dyspnœa is easily understood, but those of us who watched him could not see a clear connection between the muscle-bound chest and pneumonia or phthisis. However, in some later paper I will return to this part of Dr. Metcalfe's work. To return to asthma, Dr. Metcalfe used to say that he thought there was some way of relieving the tight muscles better than by manipulation and regretted his unfamiliarity with electricity, which he thought might be that better way. I gave him a spare battery that we had around the office, but the old dog cannot easily learn new tricks and the old doctor stuck to what he knew and had relied on for so many years, his own fingers. He treated hay fever by manipulating the eyes, nose, and

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both the inside and the outside of the throat, wherever the itching appeared.

About this time a patient applied for relief of attacks of asthma that were brought on by inhaling dust. Every time he stirred the papers on his desk — and being an artist, his desk was always dusty — he had a disagreeable attack of asthma. Here was an opportunity to test the Metcalfe theory of tight muscles. As I was much more familiar with the faradic battery than with manipulation and it was more agreeable to use, I placed one sponge on the back of the neck and with the other twitched the muscles over the chest. To include all the respiratory muscles, I exercised those of the neck and throat, the abdomen and back, as well as the pectorals and the muscles about the scapulæ. Until one stops to think of it, he does not realize the extent of the respiratory muscles. Almost every muscle from the base of the skull to the brim of the pelvis is directly concerned in respiration.

With the faradic current just as with the manipulating fingers, there are sore spots that the patient describes as bruised. They may be extremely tender, though the patient

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is not aware of them until you find them with the battery sponge or the finger. These sore spots may be found anywhere over the chest or abdomen, but are particularly common at the attachment of tendon to bones, the joints between the ribs and the costal cartilages and the joints of the sternum, especially the joint between the ensiform and the gladiolus. My idea was that if there were any stiff or tight muscles restraining the action of the ribs, the faradic exercise would limber them up.

I treated this patient twice a week for three months and had the satisfaction of seeing this asthmatic sensitiveness entirely cured; for he has remained free from it ever since, now twenty years. This case lead me to try the current on hay fever patients, passing the current over the eyes and nose and sometimes inside of the throat, wherever there was itching, just as Dr. Metcalfe had done with his manipulating finger. If cough or asthma were present, I treated them as in the case of the artist just described.

Treatment. With one sponge on the nape of the neck or between the scapulæ, pass the other sponge over the eyes, nose,

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and throat for ten minutes. Use a gentle current, just enough for the patient to feel it but not strong enough to cause pain. If cough or asthma are present, twitch the respiratory muscles for ten minutes more, not forgetting that the respiratory muscles include the abdominal muscles, those of the whole length of the spine, and the cervical muscles all around, as well as the pectorals and the scapular muscles.

In regard to polarity, I do not think it makes any real difference which pole is used in each place. I am old-fashioned enough to remember when the polarity of a faradic battery was determined by holding two sponges of equal size, one in each hand, turning the current on quite strong and calling the stronger one the negative. In those days I learned to use this "negative" pole for active treatments and this is still my habit, putting the positive on the back and twitching the muscles with the negative. If this exposition seems crude to the modern electro-therapeutist, I can only say that I am not writing a treatise on electro-physics, but relating the experiences in actual practice over a period of nearly thirty years.

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The customs in which I was brought up are good enough for me until I see real reason for changing them. The electro-therapeutist is at liberty to turn the sponges around and use them the other way if it appeals to him as more fitting.

One of the most brilliant cures of hay fever with faradic electricity was made by Dr. Thomas P. Birdsall, of Pawling, New York, about fifteen years ago. The patient was a farmer's daughter of twenty years who had lived all her life on a farm in Putnam County and had suffered many years from hay fever. Dr. Birdsall used the faradic current from a small portable battery three times a week, *while the patient remained on the farm in the irritating environment*, and in one season made a cure that has lasted to this day.

Other Forms of Electricity. It is probable that all forms of electricity will relieve or cure hay fever. I have used the faradic current because it was the most convenient. It is still the most convenient current for most physicians. The old reports are of the galvanic. Ballenger recommends the leucodescent light. I have seen several re-

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ports of the use of the high frequency current and Tousey devotes a short paragraph to it, as follows:

"The author suggests the use of a glass vacuum electrode insulated by a double wall except at its extremity, which can be applied to all parts of the nasal mucosa but especially to the inferior and middle turbinated bones. . . . A similar application may be made to the outer surface of the nose at the sides, halfway from the root to the tip." (Second Edition, page 598.)

From my experience with patients I doubt whether many of them would submit to the intra-nasal spark. A theoretical objection to using any form of high frequency or diathermia on the outside of the nose is that, in some skins, frequent application of these currents causes a permanent dilatation of the capillaries of the skin, resulting in permanent redness. I tremble to think of the wrath of the fair lady whom you should cure of the hay fever by endowing her with a permanently red nose. I know that these currents are used on the face freely by dermatologists and have often made a few applications to break up a

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catarrhal cold; but I have seen cases enough of capillary dilatation and its intractability to make me pause and choose for the nose and face the surely safe faradic current rather than the more spectacular but risky high-frequency.

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CHAPTER VI

HAY FEVER AS URTICARIA

THE fundamental error in all the literature on hay fever is the teaching that the lesion is a peculiar kind of catarrhal inflammation; whereas it is not an inflammation at all, catarrhal or any other kind. The symptoms of hay fever *resemble* those of catarrhal inflammation, but the resemblance is only superficial. The resemblance is striking and must be so to have deceived so many skilled observers, but it is only superficial, nevertheless.

When you see a patient with eyes red and swollen, overflowing with tears and mucus, burning and sensitive to light, you say at once, catarrhal conjunctivitis. In the nose the sneezing, the discharge, the obstructive swelling suggest at once catarrhal rhinitis. But stop a moment. Did you ever cure a catarrhal conjunctivitis or rhinitis in three minutes by moving the patient from one room to another? You can do that with hay fever. If you can remove the patient

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from the irritating atmosphere, the swelling and redness will subside rapidly, the discharge cease, and in five or ten minutes you would scarcely know by examining the patient that there was anything the matter with his eyes and nose. By returning him to the irritating atmosphere the symptoms will return instantly. By removing him again, they will rapidly subside. I have watched this many times in my own eyes. It was in watching the changes in my own eyes and nose that I realized that this was no catarrhal inflammation but a much more superficial lesion.

Did you ever see a catarrhal conjunctivitis that acted in this way or a cold in the head in which the patient could be cured and catch a fresh cold twenty times a day? I think you never did. A true inflammation requires time, a few hours, for its development, and when an inflammatory exudate oozes into the meshes of the tissue, it requires some days or at least some hours to be absorbed. This one point of rapid appearance and rapid disappearance would forbid our calling the lesion of hay fever a catarrhal inflammation.

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Next, associate this rapid appearance and disappearance with the chief symptom of hay fever, the itching, the intolerable itching, of the eyes, nose, and throat, itching that ceases at once on removal from the irritating atmosphere and returns instantly when the irritating atmosphere is reapplied. Turn to the skin, the external mucous membrane. What is that disorder of the skin that appears abruptly, presents redness, swelling, and intense itching, and ceases abruptly after a few minutes or a few hours according to your ability to get rid of the irritating cause, — that can be reproduced any number of times by exposure to the same cause? Why, hives, of course, urticaria or angioneurotic œdema. And a hive (or urticaria or angioneurotic œdema) is not an inflammation. It is a vascular spasm, a spasm of the minute vessels that drain small areas of skin, causing a local stoppage of the circulation in that small area, a turgescence or exudate, the hive. Just as suddenly as it began, the spasm of the vessels may relax, the swollen area is drained rapidly, and the hive disappears, leaving a faint redness. This is exactly the case with hay

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fever. It is an urticaria, a vascular spasm. The sudden onset in response to a specific irritant and the sudden disappearance — this is no catarrhal inflammation and no rhinitis or inflammation of any kind.

Those cases of hives that appear quickly after chilling the skin are perfect analogues of hay fever, appearing in response to the local irritation of odors and dust. There are cases of hay fever that resemble ordinary hives in being aggravated by certain foods, especially strawberries, acid foods, and malt liquors. This has a practical bearing on treatment; for, in such cases, simply excluding these foods from the diet and the administration of an alkali gives relief. Again, many hay fever subjects suffer from urticaria, as in the case reported to me by Dr. Rice of Hawaii, in which the attacks of hay fever alternated with urticaria.

Sir Morell Mackenzie was wrong when he said that hay fever "had no pathology because it leaves no permanent structural lesion behind it." Hay fever "has a pathology" if urticaria has a pathology, for urticaria, too, subsides and leaves no traces. However, in this statement, we recognize

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the effort to state the difference between the evanescent lesions of hay fever and the more persistent lesions of catarrhal inflammation; which is just the difference between an urticaria that comes and goes in half an hour and an eczema (catarrhal dermatitis) that takes several days to develop and is attended by a real inflammatory exudate that requires many days for its absorption.

In our text-books, our ablest specialists perpetuate this error by devising such names as *hyperæsthetic catarrh, hyperæsthetic rhinitis, vaso-motor rhinitis* — and then describing a neurosis. The two ideas will not mix. The very authors who introduce these names feel that there is something wrong with them, for usually they take several pages to explain what the name means. It is better to throw overboard both the name and the idea of catarrhal inflammation or rhinitis and start afresh.

Recent workers with pollens come near the truth in describing hay fever as an anaphylaxis. Right here my conception of the lesion of hay fever as an urticaria fits into the picture and brings us one step nearer to an understanding of the disease;

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for where is there a prettier example of anaphylaxis than those very hives with which long ago I compared the lesion of hay fever?

Since Bostock first described hay fever in 1816, hundreds of physicians have looked at thousands of patients, but, as far as I can discover, there was just one observer besides the modest author of this book who recognized the urticarial nature of the lesion of hay fever. This was Dr. Gueneau de Mussy, to whom we will devote the next chapter.

The Cause Behind the Lesion. All clinicians agree that there are two elements in the hay fever problem,—first, the irritant; and secondly, the abnormal sensitiveness of the patient. All are fairly well agreed as to the irritants, pollen and dust; but what makes the patient sensitive? This is still the dark side of the subject. Among the many theories, two seem to deserve further study and will be considered in the chapters on Hay Fever as Gout and Hay Fever as Anaphylaxis.

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CHAPTER VII

DR. GUENEAU DE MUSSY
HAY FEVER AS URTICARIA AGAIN

In searching through the early literature of rosin-weed, as related in Chapter XIV I noted that the article in the *Eclectic Medical Review* recommending rosin-weed for asthma seemed to have been copied only in the southern and western medical journals. I was curious to know if the aristocratic medical editors of the east, the intimates of Bigelow and Holmes and Warren, had deigned to notice a drug of such lowly parentage, discovered by the Indians and indorsed by the medical heretics. I began with the stately row of bound volumes of the Boston *Medical and Surgical Journal*, running back to 1860, that repose on a dusty back shelf of the Library of the New York Academy of Medicine. Looking through the volumes around 1868, when the use of rosin-weed in asthma was being quoted in the south and west, I found many quaint notes and comments, but no mention of rosin-weed. To

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any physician who has a taste for the history of his art, I would recommend reading a journal of fifty years ago. So many things have been settled that those old physicians puzzled and fought over that it gives one the sense of amusement or lofty detachment of the gods, looking down on struggling, wriggling humanity, yet knowing all the time how it would come out.

In those old books I noticed abundant quips and sneers at homœopathy, now happily taboo in the more courteous journalism of to-day. Besides, they are not so funny now. The doctrine of like-cures-like and the small dose has achieved respectability. When armies all over the world are depending on a minute dose of typhoid poison to prevent and cure typhoid fever, when articles appear in the most respectable medical journals advocating doses of tuberculin so small that they have never been calculated and one-tenth grain doses of calomel instead of the twenty-grain doses of our grandfathers, most of the merry jests have lost their flavor to-day. Rather as I expected, in the *Boston Journal*, I found no notice of the eclectic rosin-weed, but I

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found something better, a clinical lecture on hay fever by a man after my own heart, who, away back in 1868, had recognized the urticarial nature of the lesion in hay fever. This was a *Clinical Lecture on Spasmodic Coryza or Periodical Asthma*, delivered at the Hôtel Dieu, by Professor Gueneau de Mussy, translated from the *Gazette des Hôpitaux* by W. F. Munroe, M.D. The lecture runs through several numbers of the *Journal*, beginning in March, 1869, page 125. It should be read by every rhinologist and by every physician who is treating hay fever.

When the chemist Woehler, one afternoon in 1828, tried to make up some ammonium cyanate by mixing ammonium sulphate and potassium sulphate and found that he had synthesized urea, one of his colleagues said that he was like Saul, who went out to find his father's asses and found a kingdom. I felt the same way; only, in my case, I went out among the asses and found a king.

When Solomon made his despondent remark that there was nothing new under the sun and that of the making of books there is no end, he must have been in his library

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sorting out his collection of old Assyrian bricks and found that his favorite thoughts had been said already and said better by some old Hittite scribe a thousand years before. So I, who had fondly thought myself the discoverer of the urticarial nature of hay fever because I had searched the books of the specialists and found nothing about it, was surprised to find my observation anticipated by the Frenchman.

Salut! Hail to you across the years, Gueneau de Mussy, kindred spirit. It is not recorded that the gray-headed Dean of a great university ever stood you on a platform and hurled Latin adjectives at you; but in 1868 you had the sharpest eyes and clearest mind of any of them, M.D.'s or LL.D.'s, though bespattered with all the letters of the alphabet.

Of all the foolish things that scientific men quarrel about, one of the most foolish is the question of priority of discovery. A scientist who will welcome the opinion of another scientist agreeing with him the day after he announces his discovery will fight like a cat against evidence that the same man agreed with him the day before. It

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seems to me that if another human being confirms your work, it does not make any difference whether he does it the century before or after your transient existence. In fact, you should be more pleased to have it "confirmed" the century before, because then you will have a chance to know about it.

Besides recognizing the urticarial nature of the lesion, de Mussy sought the underlying cause of hay fever and thought to find it in the gouty diathesis. He notes the occurrence of hay fever in gouty families, its periodicity, its association with urticaria, eczema, granular pharyngitis and asthma, all characteristics of gout or arthritism.

As de Mussy's lecture is not readily available, I quote from the *Boston Journal* some of his conclusions.

"I have dwelt at length on the constitutional condition in order to show in what diathetic conditions spasmodic catarrh has developed. The direct and collateral hereditary tendency appears to indicate a diathetic origin. The two sisters belong to a gouty stock. Chronic urticaria and

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granular pharyngitis are not rare in gouty families.

"Periodicity is characteristic of many arthritic affections. The spring-time periodicity is especially common to them. The periodicity of this coryza places it in the same category as the arthritic affections which generally manifest themselves by regular or irregular paroxysms.

"If hay fever has been more often noticed in England than France, can this be due to the greater frequency of gout in the former country?

"Continuing the study of these analogies which, if not enough to prove a common origin, are enough to justify further study of the question, I find in one of my patients a morbid condition due to an arthritic source, *i.e.*, an urticaria alternating with asthmatic coryza (hay fever), the latter appearing with symptoms such as *injection and itching and tumefaction of the eyes which recall the cutaneous affection to which it had succeeded.* (Italics mine. Here is my urticaria theory expressed in 1868. G. F. L.)

"*Behind a vast number of nervous troubles,*

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behind a vast number of bizarre functional anomalies stamped with a nervous imprint, we find arthritism." (Italics mine. Here is my pet theory of the gouty origin of neurasthenia and perhaps Beard's *neurotic constitution*, beloved of rhinologists. G. F. L.)

"As to analogies between summer catarrh and urticaria, I wish to draw no conclusions from them. If it be admitted that both are due to arthritism, their succession and the analogy in their local development can be understood." (My urticarial nature of the lesion again. G. F. L.)

I might add that de Mussy reports success in preventing the appearance of the symptoms by the use of quinine for seven or eight days before the expected attack. During the attack he used sulphur and arsenic for the catarrh.

In the next chapter we will consider the fate of de Mussy's theory of gout as the underlying cause of hay fever.

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CHAPTER VIII

HAY FEVER AS GOUT

In the last chapter we read that the theory of a gouty diathesis as the constitutional basis for hay fever originated with Dr. Gueneau de Mussy, in 1868, on account of the many resemblances that he found between the symptoms of gout and the symptoms of hay fever. We have now to consider the fate of the de Mussy doctrine in those countries where hay fever is best known and has been most closely studied, Great Britain and America, Germany and France.

De Mussy in Great Britain and America. If any specialist on the nose and throat in England or America ever heard of de Mussy and his theory that hay fever is rooted in a gouty diathesis, he is keeping the secret well, for it does not appear in any of the books that he writes; but in every book I find the disease attributed to the *neurotic constitution* first suggested by Beard. In this state-

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ment I do not include several references to "uric acid posioning" which is not the same thing as gout, as will be explained in Chapter IX, on the Uric Acid Theory.

After reading de Mussy's argument for the dependence of hay fever on a gouty diathesis, I turned first to the English books. For centuries, England has been famous as the home of gout and, since the Englishman, Bostock's, account of his own case, hay fever, too, like parliamentary government and gout, has been recognized as an inheritance of the Anglo-Saxon race. As British physicians see more gout than any other physicians in the world and as, for many years, they have had the best opportunities for the study of hay fever, I turned first to the English books, thinking that if there was any truth in the gouty theory, the British physicians would have found it out long ago. To my surprise I searched book after book by both British and American authors, but in not one instance did I find hay fever associated with gout. These books included Allbutt's *System of Medicine*, F. T. Robert's *Practice*, Lennox Browne, Morell Mackenzie in England and, in this

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country, Ballenger, Bosworth, Coakley, Kyle, Solis-Cohen, Ivins and Vehslage and Hallett.

No one is more saturated with the traditions of British medicine than Sir William Osler, but, in his *Practice of Medicine*, in discussing the constitutional causes of hay fever, he seems to know nothing of the gouty theory.

Besides the article on hay fever in his *Diseases of the Nose and Throat*, Sir Morell Mackenzie wrote a comprehensive work on *Hay Fever and Paroxysmal Sneezing* that ran through five editions and bears on the flyleaf the admiring comment of the *London Lancet* that it "must be regarded as one of the most complete expositions of our knowledge of this curious complaint in our language." It is a wicked joy to catch such a scholarly writer as Mackenzie napping. In a footnote he even refers to the de Mussy lecture in the *Gazette hebdomadaire*, Jan. 5, 1872, as calling the disease spasmodic rhinobronchitis, with which name the disease is still known in France. One suspects that the learned Doctor was very busy that day and that the footnotes were looked up by

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somebody else; for, though he gives "the most complete exposition in our language," as the *Lancet* puts it, of the constitutional causes underlying hay fever, there is never a word of de Mussy's theory of gout.

In Osler and McCrae's *Modern Medicine* the article on Hay Fever is written by Professor Dunbar, of Hamburg, deviser of pollantin. Here at last we get away from British insularity, for, in spite of his Scotch name, Dunbar is a German. On page 863 he writes:

"For a long time it has been believed that the predisposition to hay fever rests on a gouty diathesis. This view is not on the face of it inconsistent with the pollen theory. Inquiries, however, have shown that gouty persons form only a small portion of hay fever patients."

Finally, in the great Edinburgh *Encyclopædia Medica*, 1900, Volume 4, Greville MacDonald, of London, in the article on Hay Fever, seems to know nothing of the gouty theory and says innocently at the end of the article, "No special dietary is indicated, seeing that these patients present no tendency to lithæmia, etc." He

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makes the extraordinary suggestion that, in relieving the attack of hay fever, "rather than give the patient cocaine, it might be wise to allow the opium pipe." In the early prescriptions for hay fever, opium sprays and nasal douches were common enough, but this is the only time I ever heard a reputable physician and a teacher, at that, advising a patient to "hit the pipe."

I think that, from the evidence examined, we may say that British and American authors know nothing of de Mussy and his theory.

Next, I looked up the gout authorities, Ewart, Ebstein, Garrod, Falkenstein, Lancereaux, Lecorche, each of whom wrote a bulky treatise on Gout, but there is never a word on Hay Fever.

De Mussy in Germany. For many years, whenever I have wanted to know anything from the bottom up, historically, linguistically, philosophically, I have turned to a German book and have always found what I was looking for, if it is known to man. Where an American or British author will skim over or touch a subject carelessly, not seeming to care where the idea comes from

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or its relation to other ideas in different times or countries, a German will plow steadily through the matter from Hammurabi to Wilhelm III and lay bare all the collateral tributaries and branches, always with an index at the end.

First I tried Heymann's *Handbuch der Laryngologie und Rhinologie* (Wien 1900) and found hay fever described in the article on *Die Nasalen Reflexneurosen*, by Professor Jurasz in Heidelberg; but there was no mention of gout. By this, I was truly convinced that nothing was known on the subject. If a Heidelberg Herr Professor does not know it, it does not exist. And "Professor Jurasz in Heidelberg" had failed me.

However, looking further in Heymann, my faith in German thoroughness and all-inclusiveness revived. Hay fever appears also in the article on Acute Rhinitis, by P. H. Gerber, of Königsberg, and here, on page 371, we find a complete "Literatur" spread out in true Teutonic style from Bostock to date. However, Gerber does not discuss the matter of gout in the text, but says merely, "Recently Bishop asserts that

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the nervous disturbances of hay fever are due to an excess of uric acid in the blood."

The gouty theory of hay fever receives scanty recognition from most German writers. Strümpell does not mention it. In his *Handbuch der Specielle Pathologie und Therapie*, Berlin and Wien, 1904, Eichorst says skeptically, page 326, "It has been stated often that gouty familes are especially apt to develop hay fever," and on page 330 "Grote saw hay fever patients of gouty families cured (?) by a course of waters at Neuenahr."

In Eulenberg's *Real-Encyclopædie der gesammten Heilkunde*, 1887, page 509, article *Hay Fever*, we read:

"Of general diseases, malaria and gout have been advanced as the basis of hay fever, but without convincing proof."

We may conclude, then, that while British and American physicians know nothing about the gout theory, German physicians know about it but do not believe it.

Finally, in my wanderings through German encyclopædias, I came to the many-volumed Nothnagel and here, at last, found a modern writer who knew de Mussy and

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recognized the importance of his observations. At the end of Volume 4 there is a monograph on Hay Fever by Dr. George Sticker, of the University of Giessen, the most thorough and satisfactory book on the subject that I have found. It may be read in English in the American edition of Nothnagel, Philadelphia, 1902. Sticker resists the impulse to begin with Galen, though he notes rather wistfully that John Mackenzie of Baltimore succumbs to it. He gives the most complete statement in any modern book of the gout theory of hay fever, but, alas, Sticker misses the pearl in the oyster. He says nothing of de Mussy's recognition of the urticarial nature of the lesion in hay fever.

As this volume of Nothnagel may not be easily available to the gentle reader, I copy a paragraph from Sticker for his or her benefit.

Nothnagel's *Specielle Pathologie und Therapie*, Band 4, 1896. Article *Bostock's Catarrh*, by Dr. George Sticker, page 118. "In the last few years convincing proofs are accumulating that there is a certain constitutional disorder on which the indi-

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vidual tendency to hay fever depends. Though further careful proof is desirable, it can scarcely be doubted that the pathogenesis of hay fever is based on that constitution that the English and French describe as arthritic, which expresses itself in a hereditary or family tendency to rheumatism, gout, diabetes, obesity, migraine, furunculosis, bronchitis, asthma, etc. Bostock himself mentioned his gouty tendency. Phœbus found it in many patients. But it was Gueneau de Mussy who first recognized the prevalence and necessary basis of the disease in the arthritism of the hay fever patient; and his teaching has been accepted and enriched with new material by Herbert, Leflaive, Lermoyez, Ruault, de Dreyfus-Brissac, Rendu, Molinie. . . . And so it is probably no coincidence that, like gout, the *morbus principum* of Sydenham, so also the aristocratic hay fever is a prerogative of the Anglo-Saxon race."

Reading this praise of Englishmen and Frenchmen by a German makes one sad to-day. Hasten the day when the old hearty comradeship in science will return, the day when German and Frenchman and

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Englishman will again praise one another's achievements ungrudgingly and each learn eagerly as of old what the other had to teach.

De Mussy in France. As might be expected, among French rhinologists and writers on general medicine, de Mussy's teaching is well known and has many advocates. Note that the writers mentioned by Stickerare all Frenchmen. The usual view is well expressed by André Castex in his *Maladies du Larynx, du Nez et des Oreilles*. Paris, 1907, page 425.

"Hay fever attacks especially those who belong to an arthritic stock, whose parents have had or who themselves have migraine, gravel, eczema. This explains its frequency in England and America; for the Anglo-Saxon race is especially subject to arthritic disorders. In France it exists but is infrequent. In this way also we must explain why hay fever is rare among the laboring classes who frequent the hospitals and is observed almost exclusively among wealthy patients, people of sedentary habits and sluggish digestion (nutrition ralentie)."

In Brouardel and Gilbert's *Traité de Médicine et de Thérapeutique*, Volume 27, page 66,

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another André, André Cartaz, expresses mild skepticism as to the proof offered.

"The presence of an arthritic diathesis is accepted by many authors. Leflaive thinks it the sole predisposing cause, especially gout. During the attack he has demonstrated, as I would say, and that is proof for him, an appreciable decrease in the quantity of urine and percentage of urea, an increase in uric acid and, in one case, the presence of indican."

Lermoyez also advises caution in accepting the gouty theory to the neglect of known remedies for the disease. I abstract his sensible remarks from his *Thérapeutique des Maladies des Fosses Nasales*, Paris, 1896. Article *Rhinites spasmodiques, rhume des foins*, page 300.

"It would be a mistake to hold with the German school that the nasal lesions were the only cause of hay fever; for these lesions are completely absent in many true cases of the disease and, on the other hand, many people affected with hypertrophic rhinitis breathe air full of pollen without showing symptoms of hay fever. There is certainly a general predisposition. In hay fever

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certain patients present a peculiar idiosyncrasy, often inherited, almost always neuro-arthritic. But to say with the French school that the arthritic diathesis (trivial diathesis, commonplace diathesis, *diathèse banale*) is the only cause of hay fever is to make a mistake that leads to inefficient treatment."

Conclusion. How this discussion of the gouty nature of hay fever escaped English and American authors is a strange thing. British physicians frequent French hospitals and are familiar with French medical writings. In 1868 American physicians studied in Paris as they went later to Vienna and Berlin. It is strange that they never brought back with them this French theory of the gouty nature of hay fever and that no British or American author seems to have quoted from their books.

I must make one partial exception to this statement. In his *Diseases of the Nose, Throat, and Ear*, Philadelphia, 1906, Professor Grayson says that, in hay fever, there is "some diathetic state that is rooted in defective nutrition. Whether we term this lithæmia or gout or uric acid diathesis is immaterial, the central fact being that through

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intestinal toxæmia or some disturbance of normal metabolism we have resulting a persistent poisoning of the blood-current."

Now this is simply substituting one theory for another without proof of either; for the origin of hay fever in auto-intoxication is as little proved as its origin in gout or uric acid. Auto-intoxication has simply replaced uric acid in the Doctor's mental picture gallery; for, like uric acid, auto-intoxication often exists in the imagination of the physician and not in the patient. For further discussion of this point, the reader is referred to the next chapter, on the Uric Acid Theory.

A novel and interesting article in Grayson is the description of angioneurotic œdema as affecting the nose and throat, page 182. He writes:

"I have no doubt that in this disease, as in hay fever, the gastro-intestinal tract is the birthplace of the toxic material. Although the disease may occur in gouty or rheumatic individuals, there is scarcely sufficient reason for ascribing any pathological connection between it and these other affections."

The comment on this is that, until we

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know what gout is, which we do not at present, we cannot argue satisfactorily either way. Some day I shall tell a listening world what I know about gout. I shall elaborate my favorite theory that the American neurasthenia, now rapidly increasing in other countries, is a form of gout, a gout of the nervous system. And here, too, I find that Frenchman, de Mussy, anticipating me in his remark that "*Behind a vast number of nervous troubles, behind a vast number of functional anomalies stamped with a nervous imprint, we find arthritism.*" The name *neurasthenia* was not known in de Mussy's day, but he hit off the condition neatly as "functional anomalies stamped with a nervous imprint."

The defect in all these discussions of the gouty or non-gouty nature of hay fever or of neurasthenia is our lack of a sure diagnostic sign of the disease gout. Gout occurs in two forms, typical and atypical, irregular gout. In typical gout, with the deposits of urates in the joints and cartilages, the diagnosis may be easy. In atypical or irregular gout we may have a group of inflammations or functional disturbances in

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any tissue of the body. From their frequent occurrence in gouty people, we suspect them to be gouty, but can prove nothing. When they appear in people who have never had typical gout we can only say that a gouty origin is probable. There is no sign in the blood or in the urine or anywhere else by which we can say that gout is or is not present. It is in this class of atypical gout that hay fever and neurasthenia belong, if they be gouty at all. Until somebody discovers a diagnostic sign of gout that is available in these irregular cases, the evidence of the gouty nature of hay fever and neurasthenia must remain exactly what it was to de Mussy fifty years ago, analogies of symptom groups, and not an exact laboratory diagnosis based on physiological or chemical tests such as we have come to depend upon with such confidence in recent years.

One matter that should be made clear in the reader's mind is that the so-called *uric acid poisoning* or *uricacidæmia* is not the same thing as gout by any means, though Grayson confuses it with gout, as do nearly all American authors. For fuller discussion of this point, we will pass to the next chapter.

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CHAPTER IX

THE URIC ACID THEORY

URIC acid is a substance about which more has been written and less understood than many others in medicine and that is saying a great deal. As a basis of the sub-oxidation theory of Bence Jones' day, as the cause of gout with Garrod, as a step in our knowledge of metabolism and as a popular fad, uric acid in its time has played many parts.

Uric Acid in Hay Fever. In 1893, Dr. Seth Bishop announced before the American Medical Association that "excess of uric acid in the blood causes hay fever and nervous catarrh;" and advised elimination and control of the uric acid as the principle of treatment. The article may be found in the *Journal of the American Medical Association*, 1893, and abstracted with an interesting discussion on the treatment of hay fever, in the *Philadelphia Medical News*, 1894. This position, of course, is also that

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of Haig (*Uric Acid*, seventh edition, page 386) and his followers.

Now, in 1893, the theory of uric acid poisoning flourished like a green bay tree and all sorts of queer and misunderstood pathological processes came and roosted in its branches. Patients came to our offices, not complaining of headache or lumbago or cough, but asking for "something for that uric acid." As patients will, they had already made the diagnosis from the newspapers and wished our advice only for the remedy.

As the basis of hay fever, this theory of uric acid poisoning has apparently made as little impression as de Mussy's theory of gout on the nose and throat specialists of this country and Great Britain; for I find no mention of it in their books, except the brief reference of Professor Grayson quoted in the preceding chapter. In the *Virginia Medical Monthly*, however, I find an interesting paper by Dr. John Dunn, Professor of Diseases of the Nose and Throat in the University Medical College of Richmond, Virginia. Following the suggestions of Dr. Bishop, Dr. Dunn treated his patients with

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diet and alkalies according to the uric acid theory and reports excellent results.

It may be pointed out that the successful results of the treatment by no means prove that the condition was due to uric acid; for the diet may be doing many other things besides controlling the movements of the uric acid and it is probable that the effect of an alkali in the blood is not a simple neutralizing of an acid but that it sets in motion a train of chemical changes of great complexity. None the less, Dr. Dunn's paper is well worth reading by every physician for its practical suggestions in the treatment of hay fever.

The cardinal error made by the advocates of the *uric acid poisoning* is that they *name the poison.* If the theory were stated that an unknown poison or poisons circulate in the blood and cause many symptoms of disease, as headache, gouty pains, bilious vomiting, and so on, we would all agree that this is so. Call it the X-poison, if you will, as Roentgen did with his unknown ray. But when you name the poison *uric acid*, you challenge the chemist and the physiologist to test your doctrine by chemical

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analysis, and when the uric acid doctrine is tested in this way it is found sadly wanting.

It is true that uric acid in the form of urates is found in the blood in varying quantities, but there is no proof that it does any harm there. In fact, there is good evidence that it does not. In the disease, leukæmia, there is an enormous amount of uric acid in the blood, far more than was ever demonstrated in gout or the so-called urid-acid disorders; yet, in leukæmia, there are no symptoms of gout or any other symptoms that have been attributed to uric acid poisoning.

A second error of the uric acid advocates, flowing from their first error of naming the poison, is to pour their acids and alkalies into the blood with the childlike faith that, like good children, the acids and alkalies will go in there and do just what they were told to do, neutralize the uric acid, and get out. They assume that the chemistry of the acids and alkalies is as simple inside of the body as it is outside of it and that the blood is simply a passive mixture of chemicals.

A third error of the uricacidites is to talk

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so glibly of the chemistry of the blood and the influence of this or that food or medicine on its chemical changes. The chemistry of blood! A subject of which the ablest physiological chemists have but touched the fringe, — is that a knot to be unloosed familiar as his garter by an amateur with a watch-glass and a thread?

In his *Lehrbuch der Organischen Chemie für Mediciner*, Leipzig, 1906, Bunge observes slyly that he had "sometimes had occasion to remark in private that the less a physiologist knew about chemistry, the more irresistible was his impulse to undertake the most difficult subjects."

When the uric acid amateur chemist comes to study the real poisons of the blood, he will be confronted with a problem even more intricate than uric acid, though that one is intricate enough and still unsolved. For there are "poisons in the blood," though it is improbable that uric acid is one of them. These poisons are the blood-proteins, so many that the physiologist has never counted them, so minute in quantity that no chemist has ever isolated them, so complex in structure that the ablest chemists of the world

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stand appalled before a molecule that contains sixty atoms of carbon,[1] so powerful that an undetermined fraction smaller than one-third of a grain will kill ten thousand guinea pigs or one hundred thousand mice, and so perfectly under control that they circulate harmlessly in the normal blood. The marvel is that any animal remains alive; and no animal would remain alive were it not for a system of protection by which these poisons are rendered harmless, usually by a slight rearrangement of the atoms in their molecule which is one of the wonders of organic chemistry.

We are far from knowing just what happens when we pour acids and alkalies and foods into this witches' cauldron of blood. Rather than impudently announcing the changes that are about to take place in the blood when we administer a certain food or medicine, we should stand in reverent awe before one of the most intricate and mar-

[1] Wenn mehr als 60 Atome Kohlenstoff im Molekül sind, dann ueberlasse ich das Object zu andern. Bunge, page 262, quoting "einen hervorragenden Forscher auf dem Gebiete der organischen Chemie." See Bunge for authority of these statements.

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velous puzzles with which nature ever challenged the chemist and the physiologist.

Shall we therefore stop using acids and alkalies as medicines because we do not know each step in their mode of action? By no means. We do not know each step in the mode of action of any medicine or of our foods, either, for that matter; but we do not for that reason stop eating. We should still use the acids and alkalies for their effect on the patient as far as we can see it just as we shall still go on eating food because it nourishes us; but we shall be wise to stop talking so glibly about what we cannot see and do not yet know, the effect of those acids and alkalies on the chemistry of the blood.

Uricacidæmia and Gout. Now, why do I speak with respect of de Mussy's theory of gout as a cause of hay fever and so disrespectfully of the uric acid doctrine? Are not gout and uric acid poisoning the same thing? No. They are not; though the two ideas are usually confused by medical men since Garrod's time and his demonstration of the increase and decrease of uric acid in the blood of gouty patients. Gout

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is something more than a simple accumulation of uric acid in the blood because of its imperfect elimination by the kidneys. What that something is, we do not know; but gout is, at least, a clinical entity, a definite group of symptoms known since Hippocrates' time. Take away the uric acid theory and you still have the disease, gout, that any of us can recognize, as the Greeks and Romans recognized it when the word uric acid was unknown. It is on these symptoms of gout, the clinical picture of disease, not on any hypothetical uric acid, that de Mussy based his theory and thus far he is on solid ground. On the other hand, *uric acid poisoning* is largely a figment of the imagination. Take away the uric acid, which has never been satisfactorily proved to be there, and there is nothing left. In not one one-hundredth part of the cases of so-called uric acid poisoning is it proved that uric acid has anything to do with the case.

The Deposits of Uric Acid in Gout. The deposit of uric acid in the form of urates in the gouty joint has always been a strong argument for the theory that gout,

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at least, is due to an excess of uric acid (urates) in the blood. At one time, in a humble way, I was a pathologist, and this theory of a blood overloaded with uric acid as the only thinkable cause of its deposition in the joints never impressed me as pathologically sound. I often compared these deposits of urates in the joints with the deposits of lime salts so often found at autopsies in caseous glands or small necrotic areas. The superficial observer says: "See what an excess of lime salts there must have been in the blood." He is thinking of laboratory glassware and the ground around a mineral spring that becomes encrusted with salts as the solutions evaporate. But, in animal pathology, this is a false conclusion. The animal body is not a test-tube and, in it, the laws of physics are modified by those of physiology. Lime salts are deposited in the caseous gland or tubercle not because they are in excess in the blood but because lime salts are attracted to all caseous material from normal blood. Whether or not this calcification is an intentional provision of nature to protect the body, to petrify the necrotic material

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and make it harmless, is not the question here, though the calcification has this effect. The point here is that calcification of caseous glands or necrotic areas does not presuppose an excess of lime salts in the blood. The first step is not an excess of lime in the blood but a necrosis, after which the lime salts will be deposited from normal blood.

So, it has seemed to me that the deposit of urates in and around a joint is no proof of their excess in the blood. Just as in calcification, so in gout, the first step may be a minute area of necrosis or other local degeneration that attracts the urates that are always present in normal blood; or the secret of the gouty inflammation, like that of urticaria and hay fever, may at last be found in Anaphylaxis, as described in the next chapter.

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CHAPTER X

HAY FEVER AS ANAPHYLAXIS
THE GOUTY DIATHESIS REAPPEARS

FIFTY years ago de Mussy pointed to the resemblance between hay fever and gout and claimed hay fever as a manifestation of the gouty diathesis. As related in Chapter VII, he based his theory on the resemblance between the history and symptoms of hay fever patients with those of gouty patients. In his day he found both hay fever and gout confined to the Anglo-Saxon race, both hereditary and familial, both exhibiting urticaria, eczema, and asthma, and he recognized that the lesion in the eyes and nose of the hay fever patient was not a true catarrh but an urticaria.

On the other hand, Wolff-Eisner declared that hay fever is an anaphylaxis and this idea has been developed and confirmed by Koessler and others so fully that we must accept it as proven. Let us examine this matter of anaphylaxis to determine whether

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after all there is any essential difference between the two views of hay fever.

Anaphylaxis. The conception *anaphylaxis* or *lack of protection* begins with the discovery that a harmless protein injected into a dog will so sensitize him that, after ten days or so, another injection of the same protein will kill him. The point is that the change has occurred in the animal, not in the protein injected. The protein is the same as before and can be injected once into any number of dogs without harm. In this way we explain the cases in which drugs and foods that are harmless to most people may be virulent poisons to those who happen to have been sensitized by a former overdose. The widespread use of antitoxin in diphtheria gave abundant opportunity to study the phenomena of sensitizing a human being with one dose and killing him with another dose of the same thing.

The symptoms of anaphylaxis first observed were urticaria, arthritis, and dyspnœa. Then Bruck showed that what we used to call *idiosyncrasy* to drugs and foods that are harmless to most people is really an anaphylaxis, attributable to a former over-

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dose of the same thing. Next, it was learned that anaphylaxis may persist through life and be transmitted to the offspring of rabbits and guinea-pigs, illustrating the cases in human families where sensitiveness to a certain food or drug runs down through several generations. Then the dermatologist brought in a list of skin eruptions, urticaria in the lead, as examples of anaphylaxis to certain foods or to poisons generated within the body, especially in the intestines. Then asthma was included among the anaphylactic reactions and, finally, Wolff-Eisner pointed out that the lesion of hay fever is an anaphylaxis. I may add here that this view of hay fever confirms my observation that the lesion is not a catarrhal inflammation but an urticaria.

So we have a picture of anaphylaxis as a sensitiveness to bacterial poisons or to foods or drugs that are harmless to most people expressing itself as an urticaria, an arthritis, an asthma or hay fever. But this is the very group of symptoms on which de Mussy based his theory of gout. When we add that this sensitiveness or anaphylaxis is hereditary and that it is aggravated

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by foods, drugs, or pollens that are harmless to most people, I submit that we have a pretty picture of the gouty diathesis; for the gouty diathesis, too, is a susceptibility to arthritis, to urticaria, and to asthma from causes that do not trouble other people, and in gout, too, this weakness is hereditary. One thinks of the gouty patient who cannot take iron or digitalis because it aggravates the gouty pain and of the attack of gout that is brought on by a glass of champagne or a piece of beef or a few strawberries that the majority of mankind can take freely without harm. Now, if urticaria, eczema, arthritis, asthma and hay fever form a picture of anaphylaxis, and if these symptoms also form the picture of the gouty diathesis, is it not probable that one of these pictures can be explained in the terms of the other? If the anaphylaxis to the diphtheria antitoxin, horse serum, can develop arthritis, is it not probable that the most striking feature of gout, the inflammation of the joint, is also an anaphylaxis to poisons yet unknown to us but the same poisons that make the gouty urticaria and asthma?

What if gout should prove to be a sensi-

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tization or anaphylaxis to uric acid that does not exist in the non-gouty? This would explain the puzzle of one patient full of gouty pains with very little uric acid in his blood while another patient, like the leukæmic, has a blood full of uric acid that does not trouble him.

The Mechanism of Anaphylaxis in Hay Fever. The anaphylaxis theory of hay fever is based on the observation that the epithelial cells of the mucous membranes of the eyes, nose, and throat have not lost their primitive power of digesting foreign protein.

Ages ago, when we were amœbæ or little drops of protoplasm, we had no eyes or nose or separate stomach for digesting food. The one little cell body did everything. One of the most important powers of that cell body was its power of digesting and assimilating food, and its most important food was the nitrogenous food or protein from which it built up its own body substance. Now, foreign or food protein cannot be simply absorbed as such. Foreign protein is a poison and never tolerated in the blood. The foreign protein used as food must first

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be changed into the special kind of protein that the body can use. The foreign protein is changed by splitting its molecule into its simplest parts and then recombining them in the desired form. The complex protein molecule, containing those sixty atoms of carbon that gave the Schrecklichkeit to the German professor of chemistry as related on page 71, is split up again and again into simpler forms. The end products are harmless, but the early splittings produce both poisonous and non-poisonous products. The end-results of these successive splittings, the splinters, as it were, are then combined by the amœba to form its own kind of protein or body substance.

As we rose in the animal scale, instead of being an amœba of a single cell, we became constructed of millions of tiny cells and began to set aside certain groups of cells to do special work, the eyes for seeing, the ears for hearing, the lungs for breathing, the digestive organs to prepare our food and a sheath of harder cells over the outside of the body that we call our skin and mucous membranes. Specialized as those cells have been for many generations,

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they have never forgotten that a foreign protein is a food or, perhaps, an enemy, to be split up and decomposed at sight. So, the epithelial cells of the mucous membrane of the nose and eyes, though they have no longer anything to do with digesting our food, secrete a ferment or enzyme that can split up any protein that may happen along. This process is called *parenteral digestion* or digestion outside of the intestines; and this theory of the parenteral digestion of protein is the foundation of the anaphylaxis theory of hay fever.

During the growing months of the year the air is full of pollen that is blown in everybody's eyes and nose. In that pollen is a proteid that is digested by the secretion of those mucous membranes, proceeding exactly as food is digested in the stomach and intestines, splitting up the complex proteid molecule into simpler groups, and forming both poisonous and non-poisonous substances. In the normal eyes and nose this splitting of the protein proceeds slowly, forming only minute amounts of poison. As absorption from the eyes and nose is slight, no unpleasant effects are produced.

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The first step in the development of hay fever is supposed to be a disturbance in this digestion of protein in the eyes and nose, by which larger amounts of poison are formed and absorbed by the mucous membrane, producing the first poisoning, which, like the first injection into the dog, sensitizes the mucous membrane to other doses of the same poison. It is supposed that disturbance in the protein digestion may be caused by stoppage of the nasal passages, with excessive accumulation of proteid, inhalation of excessive amounts of pollen, forming excessive amounts of poison, or, perhaps, insufficient secretion, so that the splitting-up process is not hastened to its conclusion of harmless products. The anaphylaxis theory halts a little at this point and is not exactly clear about the mechanism of that first poisoning.

After the first poisoning, the epithelia are permanently injured and remain more permeable to protein. They also develop the power of making large amounts of the digesting enzyme, which is absorbed into the blood and is supplied to all the tissues of the body, so that all tissues, including the

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skin, can decompose the pollen protein. Advantage is taken of this distribution of the protective enzyme in the skin reaction, in which a small area of skin denuded of its superficial epithelia reacts in the form of a hive-like swelling when the pollen that originally affected the patient is brought in contact with it.

The next time that the pollen reaches the eyes and nose the mucous membrane is ready for it with an abundant secretion of enzymes to destroy it. In this intense digestion of the proteid, quantities of the poisonous substances are formed which irritate the eyes and nose worse than before, explaining why hay fever becomes worse with successive attacks.

The inherited form of hay fever is explained by the well-known transmission of anaphylaxis to the offspring. The first case in the line of descent must start with a severe poisoning that lays the foundation of the anaphylactic inheritance.

I would submit to the enthusiastic immunologist that this first sensitization which he takes for granted but cannot prove is the weak spot in his hypothesis. This is

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the point where he needs help, and it is at just this point that de Mussy's neglected theory of gout completes the picture. The immunologist has not explained why I, a boy growing up with other boys, inhaling the same amounts of pollen as they, catching no more colds than they, and never having any serious illness, became sensitive to pollen while the others did not. There is no recollection of any "first poisoning" by pollen that might have started the anaphylaxis. But, says the immunologist, it was your parents who were sensitized and you inherited the anaphylaxis. Now, my parents lived to old age and had no sign of hay fever, though my brother had it and my children are beginning to sneeze and rub their eyes suspiciously in June and August. But if you associate hay fever with the gouty diathesis, as the clinical histories seem to justify, you enlarge immensely your opportunity to prove ancestral sensitization to whatever unknown poison originally produced the gouty sensitization. This view does not restrict you to ancestral hay fever, but extends it to gout or to any equivalent of gout.

The best work in English on hay fever as

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an anaphylaxis is the monograph of Karl K. Koessler in Forchheimer's *Therapeusis of Internal Disease*, 1914, Volume 5, page 671, to which the reader is referred for a full discussion of the subject. The same author gives an abstract of his work in the *Illinois Medical Journal*, 1914, page 120. This article in Forchheimer is the most complete that has been written since Sticker's time and covers the ground from Sticker, who knew not anaphylaxis, to Wolff-Eisner, who is not available in English.

I was gratified to find in Koessler a sympathetic soul. He thinks, as I did, that the monograph of Sticker in Nothnagel is the best review of hay fever that we have. He calls it "a remarkable monograph and the standard work on the subject." But why, oh why, K. K. K., in your own masterly article in Forchheimer, did you follow Sticker all through his historical chapter but leave out all that he says of de Mussy's theory of gout or arthritism as the constitutional basis of hay fever and also leave de Mussy and every reference to his work out of your list of *Literature?* The German books are more liberal. While most of

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them ignore de Mussy and his theory in their text, they all list his writings in the *Literatur*. Has the microbe of bacteriology and the laboratory bitten you so virulently that you can find no place for the gouty diathesis even in an index?

I know that the gouty diathesis is out of date. In fact, all diatheses are out of fashion. Nobody speaks of them now. They went out with the medical philosophies of the eighteenth century. Cellular pathology with its wonderful revelation of the anatomical seat of disease and bacteriology, with its still more wonderful revelation of the external cause of disease, so dazzled the eye and the mind that we forgot that the sensitive animal body behind the attacking microbe had its changes, too, its changes in body chemistry that could not be stated in terms of cells and bacteria. The pendulum is swinging back now to a consideration of the constitution of the body on which the microbe or poison acts, its *resistance* or *immunity*, its *anaphylaxis* or *allergie*. With these holiday and lady terms, are we not trying to describe what our ancestors knew as *diathesis?* For what is the old concep-

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tion of diathesis but just such a hereditary weakness or lack of defense or tendency to disease that our ancestors recognized clinically but could not demonstrate, elusive, difficult to detect, but nevertheless there; like the dog who has been sensitized to an otherwise harmless proteid, who seems well and is well in everything except his susceptibility to that one special cause of disease?

Bacteriology, which first took away the idea of diathesis, is now giving it back. The discovery of the tubercle bacillus as the cause of tuberculosis banished the *tubercular diathesis* apparently forever; but, step by step, through bacteria and then toxins and antitoxins and now through anaphylaxis and allergie, bacteriology is bringing back the old conception of an inherited or acquired susceptibility to attack. Call the old tubercular diathesis a *sensitization* and you have made it the most modern of modern discoveries. So, also, step by step, through bacteriology with its toxins and antitoxins and now with anaphylaxis, from the philosophic ash-heap on which we thought to have thrown it for good and all, like

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an old family cat that we thought was dead, comes creeping back that old conception of a gouty diathesis or arthritism, not as dead as we thought it, to complete the explanation of the existence of hay fever.

I am far from saying that calling hay fever a form of gout ends the subject. I say only that bringing such a common and puzzling disorder as hay fever in line with such a common and puzzling disorder as gout brings us a long step nearer to solving the puzzle that lies behind both of them; and I say also that, in the records of this work, the name of Gueneau de Mussy, who first recognized this relation clinically, deserves a place.

Gout as an anaphylaxis, hay fever as an external expression of gout, what a vista of therapeutic possibilities is opened up by these simple experiments with pollen extracts and foods. The subject ramifies in every direction, touching the gouty form of Bright's disease, gouty heart disease, endocarditis and pericarditis, the popular "hardening of the arteries," which may prove after all not to be due to meat in all cases or alcohol in all cases but certain foods in

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certain cases, the increase in deaths from heart disease and kidney disease in the fifth decade of life. The correlation of these gouty problems with this work in the prevention and cure of hay fever anaphylaxis awaits a Lister or a Pasteur or a Koch who will have an eye to see and a patient industry to search and find.

When you have established hay fever as anaphylaxis or lowered resistance to a specific proteid, you may be sure that the immunologist will seize the patient as his own, carry him off to the laboratory, and there attempt to raise his resistance or develop immunity to the attacking proteid by giving minute doses of the poison gradually increased. The success of this procedure will be related in the next chapter.

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CHAPTER XI

IMMUNIZING WITH POLLEN EXTRACT

THE idea of preventing disease and poisoning by preparing the body with minute doses of that poison, gradually increasing until the body is immune, is an ancient one. The practice is Ur-alt, as my favorite German history books say; for it has been found among savages and primitive peoples and is practised in a crude way by every boy who accustoms himself to that noxious weed, tobacco. Then, there are the Psylli, whom Lucan tells of, who were by heredity immune to snake poison and who could make the favored stranger immune by inoculating him with small doses (*Pharsalia*, Book ix); and old King Mithridates, of Pontus, who believed in preparedness and kept himself prepared for the attentions of his faithful subjects by taking small doses of poison every day, keeping himself immune should by any accident some poison slip into his porridge (*Pliny*, Book xxv). Old King Mithridates was a good immunologist. He knew the transient nature of

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immunity and kept the treatment up. He knew that, if he stopped taking the poison for a week or so, he would go into a state of anaphylaxis and the next dose would kill him; so he kept himself in a state of anti-anaphylaxis by not permitting too long a time to elapse between doses, after the most approved rules of modern immunology. That patient whom Goodale immunized against horse-asthma who objected to a treatment that had to be taken for the rest of her life, should learn of old King Mithridates the true practice of immunity.

This is still the weak point of artificial immunity; it does not last very long. You can immunize a guinea-pig or a patient to almost anything now-a-days by giving him minute doses gradually increased but the immunity passes off quite rapidly when the treatment is stopped. We have still something to learn from Nature in this respect. Nature can give us one dose of yellow-fever or scarlet-fever or small-pox or measles and make us immune for life but your artificially produced immunity may last for a few weeks or months only. Our closest imitation of natural immunity is vaccina-

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tion against small-pox. Here we produce an actual disease, cow-pox; yet, even here, we are not at all sure how long immunity lasts. Even in Jenner's time, the original belief in protection for life came down to seven years and our modern health boards would vaccinate every two years or, in the presence of an epidemic, more frequently.

However, Nature is a wasteful worker, wasteful of her material, and she kills a great many of her children with measles and scarlet-fever and small-pox and yellow-fever while immunizing the lucky ones. A Health Board that would kill so many people while immunizing the rest would be a public scandal. Yet it is probable that Nature's way is the most effective and that the best immunizer is the disease itself, as Koch found with tuberculosis among his guinea-pigs that the best protection against tuberculosis was inoculation with living tubercle bacilli, not with dead ones; and the autopsies show that the majority of the human race that grow up at all have been successfully immunized against tuberculosis by a mild local attack of the disease.

As yet, no one has had the boldness to

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inoculate human brings with living bacteria and to imitate Nature in her manner of killing off all the sensitive subjects in order to preserve the rest. This was formerly done by inoculation with small-pox but the unfortunate results of the practice compelled its abandonment among civilized people. Even Nature's immunity is not perfect in all diseases, as many a patient with his sixth attack of grippe or third pneumonia or fortieth year of hay fever has learned most feelingly; and this irregularity of natural immunity bears directly on the proposal to immunize patients against hay fever by small and increasing doses of the offending pollen. If the natural disease does not confer lasting immunity, you will have some difficulty in conferring lasting immunity artificially, as the immunologist is just now discovering. His immunity passes off so rapidly that he is now searching for a method of immunizing that can be carried on for many years without tying the patient to a laboratory for life. It is right here that I believe that homœopathy has valuable methods that can be applied to the situation.

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But we must not jump to conclusions. Because we can immunize successfully against one disease, it does not follow that the same methods will immunize against another disease. Each disease is a problem in itself and may require its own methods. Nor because we can immunize the guinea-pig in the laboratory, does it follow that the same methods are applicable in the human patient. The only proof that we can immunize against hay fever is to immunize against hay fever. So, to the subject!

Passive Immutiny. The first man to attempt to apply the methods of modern immunity to hay fever was Dunbar, of Hamburg, in 1903, with this *pollantin*. He attempted to duplicate in hay fever the triumph of antitoxin in diphtheria by injecting a horse with increasing doses of pollen until the horse became immune to large doses of pollen and his blood full of antibodies. Dunbar expected to confer passive immunity on the hay fever patient by transferring to him this horse serum with its antibodies. There is no better example of the rule that each disease requires its own methods of immunity. While

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diphtheria antitoxin is harmless to the diphtheria patient, the serum of the pollen-immunized horse nearly killed the first patient Dunbar tried it on, who happened to be his assistant, a sufferer from hay fever. It is probable that pollantin is based on the wrong principle, that hay fever is not, like diphtheria, a poisoning by a toxin to be antidoted by an antitoxin, However, to Dunbar belongs the credit of first attempting to put the treatment of hay fever on a scientific basis and he introduced the method of testing the patient that has been followed by all later workers, dropping the pollen extract in the eye.

Inthe *Centralblatt für Bakteriologie, Referate*, xxxvi, s. 453, there is an account of a most unseemly quarrel between Dunbar and Weichardt, the latter claiming that before leaving Hamburg, he suggested the idea of pollantin to Dunbar. Weichardt has since put on the market another hay fever specific, called *graminol*, which is the blood-serum of cattle that have fed on the offending grasses during the hay fever season. The theory is that the blood of the cow contains antibodies to those grasses

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and that passive immunity can be conferred on the hay fever patient by transferring those antibodies to his blood.

This is the old, old experiment that has been tried so many times in many diseases and has so often failed. It reminds us of the many attempts to confer on the tuberculosis patient the natural immunity possessed by the jackass by injecting the patient with the blood serum of that friend of man. The result of these experiments left some doubt as to who merited most the name of jackass, the doctor, the patient or the patient beast. Both pollantin and graminol have been praised highly in Germany but neither of them have succeeded so well in this country. Perhaps a shrewd advertising campaign had something to do with it; for the combination of a German scientist and his manufacturer can give points to any Yankee in exploiting the public with sure cures for the sick.

Active Immunity. In active immunization, the real pioneers, after Mithridates, were the homœopaths, who, for many years, have given small doses of poison ivy to prevent ivy poisoning and small

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doses of the poisons of infectious diseases to prevent and cure those diseases; but the homœopath did not realize the transient nature of immunity and the necessity for continuing the treatment for many months or years, nor did he adopt the principle of increasing the dose to the point of toleration.

The first to attempt active immunization and cure of hay fever by injecting extracts of the pollen that causes the disease appears to have been Noon, working in Wright's laboratory in London. The work was continued by Freeman, their work being reported in the *Lancet*, 1911, i, page 1572 and ii, page 814. They found the English spring form of hay fever due to the pollen of grasses. By dropping extracts of various pollens into the patient's eye, after the manner of Dunbar, they concluded that their patients were most sensitive to timothy grass and they used timothy extract exclusively in the treatment. Freeman states explicitly that a patient immunized against timothy grass is immune to all other grasses of that season; that it is unnecessary to immunize

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him to each particular grass, thus differing from some of our American observers who use the skin reaction to determine the particular pollens to which the patient is sensitive and inject every one of those pollens in the treatment.

Independently of these British observers, Karl Koessler, of Chicago, in 1910, attempted to immunize patients against hay fever by injecting pollen extracts. Like Noon and Freeman, he used the eye reaction to test his patients and found them most sensitive to rag weed. Just as the Englishmen had used only timothy grass in their cases, Koessler used rag weed exclusively. His work is reported in his article on Hay Fever in Forchheimer's *Therapeusis*, Volume V and also in the *Illinois Medical Journal*, 1914, page 120.

Selecting the Pollen. The Skin Reaction. The next step in the development of the pollen treatment was to substitute the skin reaction for the eye reaction in testing the patient's sensitiveness to various pollens. The advantage of the skin reaction over the eye reaction is that it permits testing many pollens at the same time and

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does not distress the patient as does a sharp eye reaction.

While Noon and Freeman selected the one typical pollen of spring, the timothy grass pollen, and Koessler selected the typical fall pollen of the American hay fever, rag weed, for all cases of that season, later workers, using the skin reaction, go to the extreme of injecting the patient with each and every pollen to which his skin reacts. Oppenheimer and Gottlieb carry this individualization to the point of attempting to discriminate by the skin test the patient's varying resistance to his different pollens at each treatment. This resistance may rise for some and fall for other pollens so that six or eight different pollens in different doses must be injected separately at each treatment. This is individualizing the case with a vengeance and requires an expenditure of time and skill (I almost said *skin*) that must be rather expensive for the patient.

A series of light scratches are made on the skin of the forearm or the inner side of the arm where the skin is delicate. The scratch must be only superficial and not

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draw blood. Really the best method is to make a round denuded spot by twirling a small brad-awl. A drop of extract of different pollens or a speck of the pure pollen protein is rubbed into each scratch and the result awaited for fifteen minutes. Within that time, a redness and swelling, like a hive or a bite, will appear at some of the scratches.

This swelling is the skin reaction to that pollen. Its appearance indicates the presence in the skin of reaction bodies to that pollen. It is argued, and partially proved by practice, that the pollens to which the skin reacts are the pollens to which that patient has been sensitized and these pollens are selected for administration.

The Dose. The first dose of pollen extract is the danger dose and differs for each patient according to his susceptibility for a given pollen. It is determined by dropping the pollen extract into the eye or rubbing it on the skin. To avoid anaphylactic shock, this dose must be incredibly small. Noon and Freeman's first dose was one-third c. c. of the weakest dilution of which one drop in the eye would cause hy-

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peraemia. This was usually four drops of a millionfold dilution in water. Later doses were never more than 1 c. c. of a 1 to 100,000 dilution "to avoid unpleasant reactions."

Goodale begins with five drops of that dilution that just fails to cause a skin reaction. Later, to avoid the risk of shock, he advises one-tenth of this dose.

Koessler's theoretical initial dose of rag weed extract is one drop of the weakest dilution that will just redden the conjunctiva. As he finds rag weed more toxic than the English timothy, his actual first dose is one-half of this theoretical dose. The actual first dose will vary from one drop of a 1 to 1,000,000 to one drop of a 1 to 20,000 dilution, the smaller of which he estimates to contain of pollen protein one one-hundredth part of a millionth of a gramme or .000,000,01 gramme.

Shade of Samuel Hahnemann, the first and greatest homœopath! And they drove you out of Leipzig into poverty and exile for teaching that in using drugs that are similar to the disease there is serious danger of aggravating the disease; that the dose must be extremely small; and that disease

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so sensitized the patient that a dose so small as to be inappreciable in health becomes active in disease!

The smaller doses of pollen extract are given every three or four days and increased as rapidly as possible, judging the increasing tolerance or resistance by a diminishing eye or skin reaction. With larger doses, the interval is longer, a week or ten days. The pioneer, Noon, and all workers since, warn against increasing the dose too fast, for the reactive power of the patient is easily exhausted, his resistance lowered and he may be left more sensitive than before.

Dangers of Pollen Injections. Treatment by pollen injection is beset with dangers for the unlucky patient. It has been noted how Dunbar nearly killed his first patient by injecting the serum of the horse that had been immunized to pollen. All experimenters, without exception, say that the injection of pollen extract is attended with danger to the patient, danger of anaphylactic shock, and warn against the use of any but the most infinitesimal doses. The hay fever patient is a human being who, in some way, has been sensitized

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to pollen. He is in a state of exquisite anaphylaxis and a dose of pollen injected into his blood may kill him in twenty minutes. Goodale reports shock (faintness, nausea, vomiting) in two patients following the mere rubbing of a drop of pollen extract into a scratch on the skin. Evidently the scratch was too deep and the pollen poison was absorbed rapidly into the blood instead of being stopped by the deep epithelia. I have seen a similar absorption and general reaction in children after a skin test with tuberculin, when the tuberculin entered the blood through too deep a scratch.

Another danger lies in the instability of the pollen extracts. Koessler expressly warns against commercial preparations of pollen protein because of the danger of decomposition. His extracts do not keep more than three weeks and are dangerous to use after that time. On the other hand, Goodale, making his extracts with 15% alcohol, reports them as active and fit for use after more than one year. Oppenheimer and Gottlieb object to commercial preparations on different grounds. The commercial preparations contain many differ-

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ent pollens so as to be sure to include those to which the patient is sensitive. They point out that in these mixtures, the dose of the individual pollens cannot be adjusted to the changing conditions of the patient and, in addition, injecting into the blood of the patient pollens to which he is not already sensitive may sensitize him to these pollens also and leave him worse than before.

There is the lesser danger that the patient will not be immunized by the injections but become more sensitive to his old pollens than he was before, as Noon pointed out in his first paper; for artificial immunity is a difficult thing to control and is by no means as easy as it looks in the book. Nor is it as easy to immunize a human being over many years of life, subject to so many conflicting influences, as it is to immunize a guinea-pig living in a cage.

To lessen the dangers and enable the patient to keep up his immunization for many months and years, Goodale borrowed an idea from Schloss, who fed his egg-oat-meal-almond anaphylaxis patient minute doses of these foods until he so raised his resistance that he was able to eat them in

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ordinary quantities without harm. Such artificial resistance must be kept up by eating a small quantity of the food each day or it will be lost (old King Mithridates again). As most of the pollens are not edible and as patients react to botanically allied plants, Goodale tried feeding the patient over long periods of time with vegetables and edible plants that were allied to the offending pollens, expecting that, as in Schloss's patient, some minute part of the protein would pass unto the blood unchanged and maintain the protection. So far, these feeding experiments have failed. Trial with homœopathically potentized pollens over long periods of time has not been made.

Conclusions on Pollen Extracts. My conclusions on the pollen treatment are that it is in line with our best practice of immunity but that it is still in an experimental stage, the pollens are possibly dangerous even in the hands of a skilled immunologist. In a disease that is usually so easily controlled by rosin-weed, faradism and ichthyol, I would not expose a hay fever patient to the very real danger of anaphyl-

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actic shock. The conditions governing immunity stated in the beginning of this chapter still hold good. It is transient. Already some of the early workers have discontinued the practice. The despair of Goodale has been quoted. Scheppegrell, probably the first in this country to use the pollens, has given them up and advises the patient to keep away from his irritant and to have the weeds cut in all cities as the best treatment obtainable (*Journal of the A. M. A.*, March 4, 1916, page 710). The most hopeful aspect of the pollen extracts seems to me to be their administration all around the year in high dilutions, *more homœopathico*, and to this practice I believe the immunologist will eventually come.

Pollen Extracts not Vaccines. Some manufacturers and all British writers speak of pollen extracts as *vaccines* and of immunizing the patient as *vaccination*. This seems an unnecessary confusion. We have two kinds of vaccines already, the cow-pox vaccine and the killed cultures of bacteria introduced by Wright. For an account of the use of these vaccines in hay fever, we will pass to the next chapter.

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CHAPTER XII

THE BACTERIAL VACCINES

IN his paper in *The Lancet*, the pioneer in the use of pollen extracts, Freeman, observed that "many cases of supposed hay fever" were simply acute bacterial catarrhs. He excluded hay fever by the lack of any reaction when timothy extract was dropped into the eye. The bacterial infection was proved by culture from the eyes and nose, usually yielding the staphylococcus. The final proof was the cure of the patient by an autogenous vaccine made of the offending microbe. In the past few years, this observation has been confirmed and many cases of cure of "hay fever" by bacterial vaccines have been reported in the journals. The bacteria were chiefly staphylococci, rarely the pneumococcus or the micrococcus catarrhalis.

Oppenheimer and Gottlieb report cases of mixed hay fever where the skin reacts to pollen but the pollen extract failed to cure. In these cases, they found a bacterial catarrh of the eyes and nose. They

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suppose a vicious circle, the catarrhal inflammation and the hay fever sensitiveness mutually interfering with each other's recovery and they succeeded in curing the patient by using the appropriate pollen extract and the bacterial vaccine at the same time, believing that while the pollen extract was raising resistance to the pollen poisoning, the bacterial vaccine was raising resistance to the bacterial catarrh.

While hay fever is not strictly a catarrhal inflammation, the cure of hay fever by curing a coexisting catarrhal rhinitis or conjunctivitis seems easily possible. The surgeons taught us long ago that some cases of "hay fever" need nothing but good drainage of the nose, which they secured by freeing the nose from obstruction. Every physician sees mild cases of hay fever recover on various popular catarrh treatments. The tablets sold by homœopathic pharmacies, containing iodide of arsenic, naphthalin and quillaya, cure many cases of hay fever and these are the same drugs that cure catarrhal rhinitis. It is easily possible that my old inheritance, rosin weed, cures hay fever by curing the coexisting catarrh; for it was a

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famous remedy among the eclectics for catarrhal inflammation of the nose, throat and bronchial tubes.

If, then, operations or remedies that cure catarrhal rhinitis cure also some cases of hay fever, there is nothing inherently improbable in expecting the bacterial vaccines to cure some cases of hay fever, for the vaccines have made many cures of catarrhal inflammation. However, the physician using them should understand that they are not specific drugs against the pollen anaphylaxis but against a supposed catarrh or bacterial infection. He will be well advised to control the treatment by taking cultures from the nose to make sure that the bacteria are there, determine the variety present and, if possible, have an autogenous vaccine made up for treatment.

I have no personal experience with the vaccines in the treatment of hay fever, though I know their value in ordinary catarrhal conditions. As remarked in the chapter on Pollens, I have succeeded with the milder methods of rosin-weed, faradism and ichthyol. However, bacterial vaccines are much safer than pollen extracts, the

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technique of their use is not as complicated and they are well worthy of trial in refractory cases if bacteria are demonstrated in the eyes and nose. I might remark here that this demonstration will seldom fail; for you can get a culture of the staphylococcus from almost any nose.

The Word Vaccine. Used in connection with the treatment of hay fever, the word *vaccine* is confusing, for it has been applied to two totally different kinds of medicine, the bacterial vaccines and the pollen extracts. Physicians intending to use *vaccines* in the treatment of hay fever should make sure which they are using; for the methods and dosage of the one are quite different from those of the other. Sir Almroth Wright, to whom the whole world is indebted for his work in preventive medicine, started the trouble by calling his killed bacteria *vaccines*, having in mind the prevention of bacterial diseases as the familiar vaccine prevented small-pox. Now, *vacca* is Latin for cow, *vaccinia* is properly cow-pox and the virus of cow-pox that we use in vaccination against small-pox is properly called *vaccine*. With a paucity

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of vocabulary unexpected in an Irishman, Wright called his killed bacteria *vaccines* because he used them to prevent disease, using the word as synonymous with *preventive*. As cow-pox vaccine is the greatest preventive we know, the word *vaccine* might be justified when applied to the bacterial cultures or to the pollens or to any preventative of disease. But when you leave pure prevention and apply these remedies to the *cure* of disease, the word *vaccine* loses even this shadow of justification and the present confusion results. One American house makes a laudable attempt at a more exact terminology by calling the killed cultures of bacteria *bacterins*. Still, the word *vaccine* for killed bacterial cultures has been advertised so deeply into the medical mind that it is firmly rooted there and not likely to be disturbed by mere considerations of etymology. As for the pollen extracts, they are yet young and impressionable. It would be better to leave off the word *vaccine* as applied to them and call them what they are, *pollen extracts*.

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CHAPTER XIII

DIET

UNTIL recently, diet in hay fever was a matter of avoiding meat and strawberries and the result was usually unsatisfactory. With the conception of hay fever as an anaphylaxis and the recent studies in food anaphylaxis, the subject of diet in hay fever assumes a new and inviting aspect.

This new view of diet in hay fever begins with Schloss's masterly study of a case of food anaphylaxis reported in the *American Journal on Diseases of Children*, 1912, No. 6. A good review of the subject with references to the literature will be found in the special Hay Fever and Anaphylaxis number of the *Boston Medical and Surgical Journal*, August 10, 1916, especially the article by Talbot.

Some physicians have long insisted that they could relieve hay fever by diet. For instance, I once asked a physician of large general practice what he did for hay fever. He smiled in an incredulous way that I have noticed before among people who never had hay fever and replied, "I find that

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if people will stop eating strawberries and not eat too much meat, they soon get rid of their hay fever." This answer surprised me for I knew that in his long practice, he must have seen many cases of hay fever and my experience had been that diet had no influence on the symptoms.

Then, there is Professor Dunn, already quoted in Chapter IX, who believes in the uric acid theory and says that, in his opinion, "hay fever is the result of improper eating and living." He has been able to prevent the annual attacks by using cold baths and excluding meat, tea, coffee and alcohol from the diet.

Any patient who can get rid of the annoying symptoms of hay fever by such simple means of diet and bathing should be urged to try it, whether he believes or disbelieves in the "uric acid poisoning" on which the treatment is based. My own experience leads me to believe that most hay fever patients require something more than dietary regulation to control the disease. For instance, in my own case, the disease appeared at an age when I had never taken tea, coffee or alcohol, during the summer

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vacation when I was living a hygienic out-door life, playing ball, cycling and swimming every day in the salt water. I remember one summer in camp by a lake among the pines, in which I lived Dr. Dunn's hygienic life for many weeks, drinking no tea, coffee or alcohol, eating chiefly fresh fish and green vegetables and swimming daily. My experience can be paralleled by many hay fever patients that as long as I remained among the pines, I was in perfect health but on going down into the valley, one breath of fragrant wind blowing over the fields would cause instant itching and swelling of eyes and nose and all the previous hygienic life up at the lake was no protection against the disorder. I have seen the hereditary form develop in three children of one family while they were at the seashore, bathing daily in salt water and living a care-free, active, out-door life, never taking tea, coffee or alcohol and not much meat.

So, I concluded long ago that there must be two kinds of hay fever, one kind curable by diet, bathing and exercise and another kind in which habits of living and eating

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made no difference; and I had seen mostly the other kind.

Now, there may well be cases of hay fever as there are known to be cases of that other anaphylaxis, asthma, that are pure examples of food anaphylaxis. In such a case, detecting the irritating food and removing it from the diet is the proper path to cure. The error in our former practice was to divide foods into good and bad for certain diseases. We should rather think of foods as good or bad for a particular patient.

The plain people long ago crystallized their experience in diet in the maxim that what is one man's meat is another man's poison, but your scientist will never believe anything until he sees it in a test-tube and physicians have kept on a few centuries behind the rest of the world prescribing *diet* for all cases of the same disease irrespective of whether or not it agreed with the patient. Witness the rigid *diets* for tuberculosis and Bright's disease. So, inevitably, there had to be a *diet* for hay fever and equally inevitably, the same diet did not agree with everybody.

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Scientific men are fond of stating in scientific terms what everybody else knows already. While we have known for a long time that some foods did not agree with everybody, science is just now demonstrating that one man's meat is literally another man's poison by testing the different food proteins on the skin and calling the condition *food anaphylaxis* or *food allergie.*

As the patient reader of the chapter on Pollens will remember, the anaphylaxis or sensitiveness of the patient to particular pollens is tested by rubbing a speck of different pollens into scratches on the skin. This skin reaction as a test of anaphylaxis was used by Schloss with different foods before it was adopted in hay fever; and it has been taken up by the dermatologist also. The dermatologist has long suspected that certain skin diseases, as urticaria, and eczema, are aggravated or produced by certain foods but he has been unable to demonstrate just what foods were at fault. The problem was confused by the fact that he had found no guiding principle. Food that one patient could eat with impunity brought out a beautiful eczema or urticaria

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on another patient. The uric acid theory was one effort to solve this problem but it was not comprehensive enough and it was not true. Forbidding *nitrogenous foods* has been a favorite formula with some and they straightway advised milk, which is highly nitrogenous. The recent recognition that food sensitiveness is an anaphylaxis and the detection of the foods at fault by the skin reaction may supply the missing guiding principle that was needed to adjust a diet to the individual needs.

The poisonous element in food is the protein. The food itself will serve for the skin test but it is better to use the pure food protein, which gives clearer reactions and avoids contamination. Proteins of all our common foods are now obtainable in the drug trade put up in tiny capsules ready for the test.

The skin is cleansed with soap and water and dried. A number of little spots are denuded of their superficial epithelia by twirling a small brad-awl, which should not scrape deeply enough to draw blood. Most workers speak of scratching the skin but the brad-awl scrapes to the proper depth

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more quickly and easily. The spots are marked with the names of the foods to be tested, as milk, beef, potato, oats, etc., and a drop of a five per cent solution in water of the respective proteins is rubbed into the spots. One spot is left as a control, into which normal saline or 3% solution of milk sugar is rubbed, as the proteins of commerce are made up with milk sugar. Within five or ten minutes, there appears a redness and swelling, as with the pollens. As with the pollens, a patient who at any time has been poisoned or, as we now say, *sensitized* by any of these foods, still has circulating in his blood or fixed in his skin the reactive bodies to that food. These reaction bodies react to that food on the skin by redness and swelling. Food proteins that cause no redness and swelling are thought harmless for that patient. Foods that cause the reaction are thought to be those to which the patient has been sensitized and to which he has not developed or maintained an efficient defence. There is a contradiction here; for the reaction merely shows the presence of defense bodies in the blood and does not tell us whether that defence is or

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is not efficient. However, even if the argument limps, the results reported are encouraging. Some striking cures have been reported by simply excluding these foods from the diet. The test is simple and harmless if the scratch is not too deep and *if the protein is not injected beneath the skin.* If injected beneath the skin or rubbed into a deep scratch, the food proteins, like the pollen proteins, may be dangerous. If they are absorbed rapidly into the circulation of a patient who happens to have been sensitized to any of them, there is serious danger of anaphylactic shock.

If these observations prove reliable, here is a method of selecting a diet for the individual patient that surpasses in accuracy anything that we have ever known. If hay fever is ever a food anaphylaxis, this method of testing the food sensitiveness of the individual patient promises much; but these observations are still too new and unconfirmed and the skin reaction too uncertain to rely on it implicitly yet. There was a time, back in 1908 to 1910, when the skin reaction for tuberculosis too was highly valued. Enthusiasts proposed to test all

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the school children and all the soldiers and all the factory workers and segregate the tubercular by the skin test. The diagnosis of tuberculosis was to be put in words of one syllable.

That dream is over. Tuberculin skin reactions have now been made by the million and we know that a positive reaction means nothing but that, at some time, the patient has been infected with tuberculosis. The skin test does not tell us whether he has recovered long ago and built up a good defense or whether he is still sick with tuberculosis and will die of it. It reacts equally well in the healthy, vigorous subject who at one time has had a mild tuberculosis and recovered, in the patient with early phthisis and in the advanced case. In Kraus and Levaditi's *Handbuch der Technik und Methodik der Immunitätslehre*, 1911, page 205, von Pirquet himself, the grandfather of all the skin tests, says, "A positive skin reaction indicates with certainty that the organism has been infected with tuberculosis. Of the localization, extent and prognosis of tubercular infection, a positive skin reaction gives no conclusion."

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Yet hundreds of physicians to-day are making diagnoses of tuberculosis by the skin test; for if there is one thing more difficult than to get a new idea into a doctor's head, it is getting it out again when the idea proves fallacious. So, I view these skin reactions for food and pollens with some suspicion of their real value in diagnosis and prognosis and as guides to treatment. Still, Talbot says, "Experience has shown that when a positive skin test is obtained for a food and that food is then excluded from the diet, the general condition of the patient almost invariably improves and in many instances a cure results." May his words prove true.

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CHAPTER XIV

ROSIN-WEED AGAIN
HISTORICAL AND PHARMACOLOGICAL

WHEN we wish to learn anything about American medical literature, we turn to the big Index Catalogue of the Library of the Surgeon-General. The botanical name of rosin-weed is *silphium*. In the Index Catalogue, the word *rosin-weed* does not appear, but, in the first series, under *silphium*, there are ten references, and thereby hangs a tale.

Ancient Silphium. In ancient Greek and Roman medicine there was a famous gum called *silphion* (Latin *silphium*) which, like all popular medicines, was the better for being brought from a far country and for being a little mysterious; for it was brought across the Mediterranean from Cyrene, where it had been originally presented to the inhabitants of that favored place by the gods. Learned botanists have discussed at length what plant produced this gum and have concluded that, like its neighbor in Egypt, the papyrus plant, it has disappeared

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from the earth. Even in Dioscorides' time the plant was getting scarce and there came a day when in all Cyrene there remained only a single silphium plant, which was piously presented to that worthy representative of the gods, the emperor Nero.

In the year 1817, an Italian, Della Cella, returning from an expedition of the Egyptian Pasha against the neighboring Arab tribes, reported that he had discovered the ancient silphion growing on the site of old Cyrene. He brought back specimens of the plant which were identified as a species of thapsia. Several expeditions brought back more specimens but there was little general interest until Laval, in 1859, saw the commercial possibilities in a revival of this wonder-medicine and put the famous old cure-all on the market as a specific for consumption, under the name of *silphium Cyrenaicum*, backed by the endorsement of all the ancients from Hippocrates to Pliny. Seldom has even a French or German drug house found so distinguished a company of medical authorities to endorse its wares. Whereat, there began a brisk discussion in the European journals, first, whether the

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ancient silphion had been found and, secondly, whether, if found, it was worth anything. Both questions being finally decided in the negative, the ancient silphion passes again into the twilight of tradition; all of which entertaining tale may be read at great length in the *Dictionnaire Encyclopædique des Sciences Médicales*, Paris, 1881, Volume 9.

Now, with one exception, all the references to *silphium* in the Index Catalogue refer to this *silphion* controversy and have nothing to do with our American *silphium* or *rosin-weed*. The exception is the reference to Dr. Goss, to be related presently.

The American Silphium. On the American prairies from Ohio south and west to Texas, as far north as Wisconsin and south to Florida, there grows abundantly a plant unknown in Europe and better known here to botanists than to physicians. From the gummy juice that exudes from the leaves and stem, Linnæus himself named the genus *silphium* in memory of the ancient silphion of Cyrene and the plain people called it *rosin-weed*. There are more than twenty species of rosin-weed or silphium, all

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probably similar in their medicinal virtues. The species that we have used in hay fever is the *silphium laciniatum* (*Silphium gummiferum, Ell.*) This species is known also as the compass-plant or pilot-weed because the large lower leaves present their faces north and south, as we may remember from our boyhood tales of the plains where the trapper never lost his way because he had simply to look down at his feet and there was the compass-plant pointing faithfully to the north.

Rosin-Weed among the Indians. This rosin-weed is not a poisonous plant. Children all over the west gather the resin for chewing-gum as the Indians did before them and horses eat it freely, being thereby protected from the heaves, as the frontier tradition goes. Rosin-weed was valued highly by the Indian. He chewed the gum to make his breath sweet and drank a decoction of the root to make him live forever. The rosin-weed of the Indian is the parallel of the ancient silphion, the opoponax or *all-healing juice* of southern Europe, the spruce gum and pine tar of rural America and the more valued resins of the East

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where, in Othello's time, the trees dropped down their medicinal gum; for we find the native gums used all over the world for the same diseases, cough and consumption and urinary distress, always with a dash of mystery and the idea of prolonging life.

Rosin-Weed among the Eclectics. One would have thought that the early American botanic physicians who worked so industriously to introduce American plants and who learned the use of many native plants from the Indians, would have adopted such a popular remedy but I find no mention of it in their books. The learned writer in the *Dictionnaire des Sciences Médicales* was correct in writing, in 1821, Volume 51, page 312, that there were several varieties of silphium, all growing in America, but that none of them as yet had been used as medicines.

It was reserved for a successor of the old botanic school, an eclectic physician, Dr. H. B. Garrison, to introduce rosin-weed into medical practice as a specific for asthma in an article in the *Eclectic Medical Review* in 1868. This article was abstracted in the *Pacific Medical and Surgical Journal*,

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in the *Nashville Journal of Medicine and Surgery* and in Francis Porcher's *Medical Botany of the Southern States*, second edition, 1869 (not in the first edition of 1863). Dr. Garrison noted also the popular belief that heaves or asthma did not exist in horses on the prairies where this plant grew.

For a few years, rosin-weed became popular and was widely commented on in the eclectic journals; but it soon dropped out of sight and is not to be found in any eclectic text books to-day.

Rosin-Weed among the Homœopaths. Rosin-weed comes into the homœopathic school through "the indefatigable Dr. Hale," as Richard Hughes calls him. The homœopathic school owes much to Dr. E. M. Hale, who enriched our materia medica with many American plants, most of them drawn from the eclectic school and, be it noted, Dr. Hale gives full credit to that school from which the new medicines came. Dr. Hale did masterly work in proving the new remedies and verifying the observations of the eclectic physicians and published his *Characteristics of New Remedies* in 1864. In 1868, Dr. Garrison published his paper

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on the use of rosin-weed in asthma and Dr. Hale, in his third edition of 1873, included rosin-weed under the name *silphium laciniatum*, as follows:

SILPHIUM LACINIATUM

ROSIN-WEED

Syn. (page 544) Compass-plant, Polar-plant, Rosin-weed.

Analogues, Cubeba, Copaiva, Terebinthina.

Officinal preparations. — Tincture of leaves: dilutions.

Catarrhal affections and diseases of the mucous membranes.—Eclectic.

Chronic catarrh of the nasal passages.

Chronic laryngitis and bronchitis.

Asthma, hurried (breathing?) with concomitant catarrhal affections of the bronchial mucous surfaces.

(It is a popular domestic remedy in *asthma*. Eclectic physicians value it highly in throat affections. Some homœopathic physicians, Drs. Small, Kendall and others have used it with gratifying results. — Hale.)

Horses that eat of the leaves mixed in hay are cured or relieved of the *heaves* and chronic loose cough.

Catarrh of the bladder.

Dr. Hale did not prove this remedy. All symptoms except the last one are clinical,

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that is, they disappeared while the patient was taking the remedy but they have not been produced on the healthy. The last symptom is a pathogenetic symptom verified by cure. There is, however, a proving of silphium but it is buried deep in the dust that covers old reports and has not seen the light of day for many a year. I reprint it here from the *Hahnemannian Monthly*, Volume 8, June, 1873, page 536, from the report of a meeting of the Philadelphia County Homœopathic Society.

"Silphium lac.—Dr. G. A. Hall, in the April number of the Medical Investigator gives a summary of a proving. (The first decimal trituration was given in doses of two grains gradually increased to ten grains every two hours.)

"It produces a scraping, tickling and irritation of the fauces and throat; nausea, sick, faint feeling and a sense of goneness in the epigastrium; a desire to hawk and scrape the throat, throwing off a thin viscid mucus. The irritation extends up the posterior nares, involving the mucous membrane of the nasal passages, producing sneezing, followed by a discharge of limpid, acrid mucus from the nose, attended with constriction and pressure in the supra-orbital region. Engorgement and thickening of the mucous membrane of the throat as far down as could be seen; rough

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cough, attended with the expectoration of yellow mucus; contraction and tightness of lungs, constant disposition to raise; hacking, spasmodic cough; tongue covered with whitish slimy coat attended with dry sensation as if burned with hot soup; urine high colored and scant, frequent passages with sense of heat at the meatus urinarius during passage of urine; stools natural in form but covered with whitish, slimy mucus. An internal feverish sensation; pulse not accelerated; want of appetite.

"**Clinical Observation.** For ten years, I have used silphium in asthma with large quantities of stringy mucus, in influenza, coryza, catarrh, and believe it to be the best remedy we have in phthisis when gray or yellow mucus is expectorated copiously, causing rapid exhaustion. I use the second decimal trituration in one or two-grain doses every two hours until expectoration is diminished perceptibly and then at intervals of four or six hours until expectoration is diminished to a degree consistent with other symptoms of the case."

In spite of this good start, rosin-weed did not have any better fortune with the homœopaths than with the eclectics. It never got into the text books. After transient popularity in the journals, it sank back into obscurity and has remained as a remedy for asthma in the memory of a

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few of the older practitioners from whom it is occasionally handed on by oral tradition.

It was in 1872 when rosin-weed was enjoying its brief publicity and when the epidemic of epizoötic among the horses created a public interest in veterinary medicines, that my father, Dr. Alexander H. Laidlaw, discovered its remarkable curative power in hay fever, as related in Chapter II.

Rosin-Weed among the "Allopaths." Rosin-weed never got into the Pharmacopœia but it is none the worse for that. More people have been poisoned by the drugs inside of the Pharmacopœia than by those outside of it. Except the few comments by western and southern medical journals, it was practically unknown in the dominant school, as shown by there being only one reference to it in the Index Catalogue. This is an article by Dr. Q. J. M. Goss, of Marietta, Georgia, in the *Nashville Journal of Medicine*, 1887, xx, page 60, in which Dr. Goss praises rosin-weed highly for its power to cure catarrh of the mucous membranes, comparing it to the balsams, cubeb and turpentine, and relating the cure of two cases of asthma.

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In the Library of the New York Academy of Medicine, there is a thin pamphlet by Dr. Goss, entitled *New Medicines*, which I suspect to be taken chiefly from Dr. Hale's *New Remedies*, in which he says of silphium laciniatum, "It has proved for me one of the best remedies in humid asthma. I have made several brilliant cures with the tincture of this plant and the tincture of ptelea trifoliata in doses of 30 drops each four times a day in simple elixir. . . . In acute diseases of the mucous membranes, the dose should be small, 5 to 10 drops; but in chronic inflammation, the dose may be 30 drops of the saturated tincture. It is a valuable remedy in chronic bronchitis and tracheitis. It will soon become a popular remedy in mucous diseases."

This prophecy of popularity was scarcely borne out; for, with the exception of the article by him in 1887, rosin-weed drops out of sight and is found in no books published in the last forty years.

Pharmacology. For the following information, I am indebted to the Botanical Department of Parke, Davis & Co., whom I wish to thank for their unfailing courtesy

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in replying to my inquiries about this little known plant:

"Rosin weed is a general name for all species of the genus *silphium* of which there are more than twenty species; some of these species, however, have special names. Three species are usually mentioned as being used for medicinal purpose. We list them with their synonyms as follows:

Silphium perfoliatum, Lin. Indian cup, ragged cup, cup plant, rosin weed.

Silphium terebinthinaceum, Lin. rosin weed (true), prairie dock.

Silphium laciniatum, Lin. Syn. S. gummiferum, Ell. compass-plant, polar plant, pilot plant, rosin weed.

It is more than probable that all the species of the genus are equally effective from a therapeutic point of view."

We have always used the fluid extract of the herb. Goss and Hale used the tincture of the fresh leaves and so the homœopaths have always used it. Since looking into the history of the plant, I recall a remark of that wise old physician, Rademacher, in regard to chelidonium. *Ich bin kein Freund von Extrakten.* He preferred the tincture of the fresh plant. Tinctures of the fresh plant were Hahnemann's preference too, and it may well be that with

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rosin-weed also, the tincture preserves the medicinal power better than the extract.

Mode of Action. If the proving of rosin-weed made by Dr. Hall is reliable, we must conclude that rosin-weed cures the symptoms that it produces in the healthy and it must be regarded as acting on the homœopathic principle. I must own that I am a little suspicious of provings that match so closely the long established popular use of a drug and, in this case, believe that we must wait for confirmation of this proving before accepting it as sound. Rosin-weed has always seemed to me to be a harmless herb, which is shown also by its use among children as chewing gum. I have never noticed the "tonic, diaphoretic or diuretic effects" attributed to it in eclectic medicine and believe that they must be feeble. The only unpleasant effect that I have noted is nausea after large doses, sixty drops or more, and this in very few patients. Vomiting is rare, is never serious and ceases spontaneously when the stomach is empty of the drug.

At the Baltimore meeting of the American Institute of Homœopathy, where the use of

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rosin-weed in hay fever was first reported, Dr. John Sutherland, of Boston, made the proper criticism that if rosin-weed was harmless and could not produce any effect on the healthy body, he could not understand how it had any power to cure. To this, I had no answer except that I had both taken and given large doses for many years to patients of all ages and had never seen any symptoms develop. Another speaker suggested that, like calcarea and silica, potentization would develop pathogenetic powers that were not evident in the crude drug. This I have never tried. As related in the chapter on Bacterial Vaccines, I suspect that the curative power of rosin-weed in hay fever lies in its power of relieving a coexisting catarrh, of which theory we have the confirming evidence that other methods that cure catarrh, nasal operations, bacterial vaccines, homœopathic remedies, have often cured a coexisting hay fever. Since that discussion, I have found Dr. Hall's proving. It would be a pleasure to find that our old family remedy for hay fever really acts on the homœopathic principle but I believe that the question needs the verification of further proving.

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